

SEQUENCE LISTING

<110> Seibler, Jost
Schwenk, Frieder
Kühn, Ralf
Küter-Luks, Birgit

<120> siRNA mediated gene silencing in transgenic animals

<130> 022698us JH/BM
<140>
<141>

<150> US60/420,476
<151> 2002-10-22

<150> US60/467,814
<151> 2003-05-03

<150> US60/485,969
<151> 2003-07-03

<150> 02023283.1
<151> 2002-10-17

<160> 220

<170> PatentIn Ver. 2.1

<210> 1
<211> 13139
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Rosa26 locus
sequence

<400> 1

aagcttctca cgtagcaacc agagctccag agccagcagc tgctggcc 60
actcctgtga tccaaacacag gagcaacctt ttctttaccc caccggact tcttaacaca 120
cttttttttg gggggggggg gggaaacaagt gctccatgct ggaaggattg gaactatgct 180
tttagaaagg aacaatccta aggtcacttt taaattgagg tctttgattt gaaaatcaac 240
aaataccaaa ttccaaatat tcgttttaat taaaccagca atgtggatata aagcattaag 300
tttttagttt aaaaagggtca atttccaaa cattcagcaa tcatatttaa atttacagct 360
aggaacaaaga gccttgggtc atgtccttacc aaagaacata actcaatattt ctacacatga 420
caatctgaat aaccttaaag cctctaatcc cataacaggc cacaaatttt ggacagagaaa 480
ctaatttatcc tccttggaaaaa actggaagaaa atccaggggaa aagaattcc tgggtccctcc 540
aaactcagaa atctctaattt atgtcagttt tctctgctt agtccatgtt cagattgcac 600
acatctaaaa taacctctta aagtttcctt ccttagcgacc taaaccatta ttaatataaa 660
attaaccatc aaaacacttt cctctcaata tgctgcacac aaaccccttc ctggAACCTC 720
ctccatctgg atcctccca atcaaaagta taggtattta acatataagc aaggaagttaa 780
tgtaaacatg accttgggtca caaatatgtc atctaaaaac aatttagtca aggtatggag 840
gaaattcggag aacctgaatc ttttaagta ttttggcac aggaacaattt ggcaaaaaggaa 900
atccaggat agacaaaacc cagagccag agctctggc gaaaaatggag ttgctggta 960
agacgttaca caagtaacat gagaaagcag aaaatgcagg tcattccacgc accccctgacc 1020
caggccagca gggccggctg cagcatcagt acacaggaga aagatcccta ttcctaagaa 1080
tgagaaaggc aaaggcgccc gatagaataa attagcatag aagggcttt cccaggagtt 1140
aaaactttcc ttcttgagcga ttacctacta aaaccaggc ttggccac taccattac 1200
ctaggatctt ggcttgcacg gattcatagg ggcataatccc tccccctt ctttagagtc 1260
gttcttaaaa gatcgctctc cacggccctag gcaggggaaaaa cgacaaaatc tggctcaattt 1320
ccaggctaga accctacaaa ttcaacaggg atatcgcaag gatactgggg catacgccac 1380
agggagttcca agaatgtgag gtgggggtgg cgaaggtaat gtcttggtg tggaaaagc 1440

agcagccatc tgagatagga actggaaaac cagaggagag gcgttcagga agattatgga 1500
 ggggaggact gggcccccac gagcgtaccag agttgtcaca aggccgcaag aacaggggag 1560
 gtggggggct cagggacaga aaaaaaaagta tggatattt gagagcaggg ttgggaggcc 1620
 tctcctgaaa agggtataaa cgtggagtag gcaataccca ggcaaaaagg ggagaccaga 1680
 gtagggggag gggaaagagtc ctgaccaggaa gaagacatta aaaaggtagt ggggtcgact 1740
 agatgaagga gacgccttct ctctggca gacgggtgca atgggtgt aaggtagctg 1800
 agaagacgaa aaggcgaagc atcttcctgc taccaggctg gggaggccca ggcccacgac 1860
 cccgaggaga gggaaacgcag ggagactgag gtgacccttc tttcccccg ggcccggtcg 1920
 tgtggttcgg tgtctcttt ctgttggacc cttaccttga cccaggcgct gccggggccct 1980
 gggcccgccg tcgcggcgcac ggcactcccgg gggaggcagcg agactcgagt taggcccac 2040
 gccggcgcac ggcgttccct ggccggaaat ggcccgtacc cgtgagggtgg ggggtgggggg 2100
 cagaaaagc ggagcggagcc cgagcgggaa gggggagggc cagggcggaa gggggccggc 2160
 actactgtgt tggcggactg gcccggactag ggctgcgtga gtctctgagc gcaggcgggc 2220
 ggcggccgccc cctccccccgg cggcggcagc ggcggcagcg gcggcagctc actcagcccc 2280
 ctgcccggc gggaaacgcac ctgaccgcac ggggattccc agtgcggcgc ccaggggcac 2340
 gccggacacg ccccctcccg cccgcgcatt ggccctctccg cccaccgcac cacacttatt 2400
 ggcgggtgcg cgcgcacatca gcccggactg cccggggccgc ctaaagaaga ggctgtgctt 2460
 tggggctccg gtcctcaga gggcctcggc taggttagggg atcgggactc tggcggggagg 2520
 gcccgttggt gcggttgcgg ggtatggcgg cccgcggcagg cccctccgagc gtgggtggagc 2580
 cgttctgtga gacagccggg tacgagtcgt gacgcgtggaa ggggcaagcg ggtgggtggc 2640
 aggaatgcgg tccgcctgc agcaaccggg gggggagggg gaaggaggcg gaaaagtctc 2700
 caccggacgc ggccatggct cgggggggggg ggggcagcgg aggaggcgtt cccggccgac 2760
 tctcgctcgt gattggcttc tttccctccc gccgtgtgtg aaaacacacaaa tggcgtgttt 2820
 tggttggcgt aaggcgccctg tcagttAACG gcaagccggag tgccgcagccg cccggcagcct 2880
 cgctctgccc actgggtggg gcccggaggta ggtggggta ggcgcagctgg acgtgcgggc 2940
 gccggcggccc tctggcgggg cggggggagg gaggggagggt cagcggaaagt agctcgccg 3000
 cgagcggccg cccacccctcc cccgcctctg ggggagtcgt tttacccgc gccggccggg 3060
 cccgcgtcgtc tgattggctc tcggggccca gaaaactggc cccgcctccatt ggctcggttt 3120
 cgtgcaagtt gagtcacatcc gcccggccagc gggggcggcg aggaggcgtt cccagggttcc 3180
 gcccctcccc tcggcccccgc gcccgcaggt ctggccgcgc gcccctgcgc aacgtggcag 3240
 gaagcgcgcg ctggggggcg gacggggcag tagggctgag cggctgcggg ggggtgc当地 3300
 gcacgtttcc gacttgagtt gcctcaagag gggcgtgctg agccagaccc ccatcgccca 3360
 ctccggggag tggagggaaat gggcggcgc tcagttggc tggggggat gcagggaaagc 3420
 cttgctctcc caaagtcgtc ctgagttgtt atcagtaagg gagctcgagt ggagtagggc 3480
 gggagaaggc cgcaccccttc tccgggggggg gggggggaggat gttgcataat ctttctggg 3540
 gttctctgtc gcctcctggc ttctgaggac cccctggc ctgggagaat cccttcccccc 3600
 tcttcctcg tgatctgcaa ctccagttttt tctagaagat gggcggggaggat cttctgggca 3660
 ggcttaaagg ctaacctggt gtgtggcgt tgcctgcgc gggaaattgaa caggtgtaaa 3720
 attggagggaa caagacttcc cacagatttt cgggtttgtc gggaaatggggat ttaataggg 3780
 caaataagga aaatggggagg ataggttagtc atctgggtt ttatgcagca aaactacagg 3840
 ttattatttc ttgtgatcc cctcgagta tttccatcg aggttagatta aagacatgt 3900
 cacccgagtt ttatactctc ctgcttgaga tccttactac agttagaaat tacagtgtcg 3960
 cgagtttagac tatgtaaagca gaattttat cattttaaat gagcccgat cttcatatcc 4020
 atttctcccg ctccctctgc agccttatca aaaggatattt tagaacttc attttagccc 4080
 cattttcatt tattatactg gcttatccaa ccccttagaca gagcattggc attttccctt 4140
 tcctgatctt agaagtctga tgactcatga aaccagacag attagttaca tacaccacaa 4200
 atcgaggctg tagctggggc ctcaacactg cagttctttt ataaactccctt agtacacttt 4260
 ttgttgatcc ttgccttgc tccttaattt tcagttgtcta tcacccctcc cgtcgtgtt 4320
 gttccacatt tgggcctatt ctcaatccag ggagttttac aacaatagat gtattgagaa 4380
 tccaaacctaa agcttaactt tccactccca tgaatgcctc tctccctttt ctccatttat 4440
 aaactgagct attaaccatt aatggtcca ggtggatgtc tcctccccat attacctgt 4500
 gtatcttaca tattgcccagg ctgatattttt aagacattaa aaggatattt tcattattga 4560
 gccacatggt attgattact gcttactaaa atttgtcat tgtacacatc tgtaaaaagg 4620
 gttccctttt ggaatgcaaa gttcagggtgt ttgttgctt tcctgaccta aggtcttgcg 4680
 agcttgcattt ttttcttattt aacgtgtct tttcttgcg tcggcttgc acatggcatt 4740
 ctacacgtta ttgtggctc aatgtgtatt ttgtggctt tcctcaggac ctataatttt 4800
 gtttgactt tagccaaaca caagtaaaat gattaagcaa caaatgtatt tttgtggctt 4860
 gttttttagg ttgttgctt gtgtgtctata ataataactat ccaggggctg 4920
 gagaggtggc tcggagttca agagcacaga ctgctcttc agaagtccctg agttcaattc 4980
 ccagcaacca catgggtggct cacaaccatc tggatgggta tctgtatggcc tcttctggg 5040
 tgtctgaaga ccacaagtgt attcacattt aataaataaa tccctcattt tcttctttt 5100
 tttttttta aagagaatac tttttttttt aatgttccatg agaattttact gaagtaatga aataactttgt 5160
 gtttggcata atatggtagc caataatcaa attactctt aagcactggaa aatgttacca 5220

aggaactaat ttttatttga agtgtaactg tggacagagg agccataact gcagacttgt 5280
 gggatacaga agaccaatgc agacttaat gtctttctc ttacactaag caataaagaa 5340
 ataaaaatg aacttctagt atcctatttgc tttaaactgc tagcttact taactttgt 5400
 gcttcatcta tacaaagctg aaagctaact ctgcagccat tactaaacat gaaagcaagt 5460
 aatgataatt ttggatttca aaaatgttagg gccagagttt agccagccag tggcgggtgt 5520
 tgccttatg ccttaatcc cagcactctg gaggcagaga caggcagatc tctgagttt 5580
 agcccagctt ggtctacaca tcaagttca tctaggatag ccaggaatac acacagaaac 5640
 cctgtgggg aggggggctc tgagattca taaaattata attgaagcat tcctaatga 5700
 gccactatgg atgtggctaa atccgtctac cttctgtatg agatgggtt attattttt 5760
 ctgtctctgc tggtgggtgg gtctttgac actgtgggtt ttcttaaag cctccttcct 5820
 gccatgttgtt ctctgttttgc tctactaactt cccatggctt aaatggcatg gctttttgcc 5880
 ttctaaaggc agctgcttagt atttgcagcc tgatttccag ggtgggttg gggaaatctt 5940
 caaacactaa aattgtcatt taatttttt tttaaaaaat gggttatata ataaacactca 6000
 taaaatagtt atgaggagtg aggtggacta atattaaatg agtccctccc ctataaaaga 6060
 gctattaagg cttttgc tatacttaac ttttttttta aatgtgttat ctttagaacc 6120
 aagggtctta gagttttgtt atacagaaac tggcgtatcg cttaatcaga ttttctagtt 6180
 tcaaattccag agaattccaaa ttcttcacag ccaaaatgttca attaagaatt tctgactttt 6240
 aatgttaatt tgcttactgtt gaatataaaa atgatagctt ttcctgaggc agggctcac 6300
 tatgtatctc tgcctgatct gcaacaagat atgttagacta aagttctgcc tgctttgtc 6360
 tcctgaatac taaggttaaa atgttagtaat acttttggaa ctgcaggc agattctttt 6420
 ataggggaca cactaaggga gcttgggtga tagttggtaa aatgtgttca aatgtgtgaa 6480
 aacttgaatt attatcaccg caacctactt tttaaaaaaa aaagccaggc ctgttagagc 6540
 atgcttaagg gatccctagg acttgcttagt cacacaagag tagttacttgc gaggcctcct 6600
 ggtgagagca tatttcaaaa aacaaggcag acaaccaaga aactacagtt aagggttacct 6660
 gtcttaaacatcata tacacaggta tattaaaata ttccaaataa tatttcattt 6720
 aagtttccc ccataaaattt gggacatggta ttctccggtaa gaataggcag agttggaaac 6780
 taaacaaaatg ttggttttgtt gatttggtaa attgtttca aatgtatgtt aaagccatg 6840
 agatacagaa caaagctgtt atttcgaggt ctcttggttt atactcagaa gcaacttctt 6900
 gggtttccctt gcaactatcctt gatcatgtgc taggcctacc ttggctgtatg tgggttcaa 6960
 ataaaacttaa gtttcctgtc aggtgtatgc atatgatttc atatataaag gcaaaacatg 7020
 ttatataatgt taaacatttgc tacttaatgtt gaaagttagg tctttgtggg ttgatttttt 7080
 aatttcaaa acctgagctt attttgcattt gtttgcaggca ttcacatgtt ttacatgtt 7140
 ataattgtgg tttgcaggca tctcaataa tctcaataa tggcgttccctt tttaaaaaag cccttgcct 7200
 ctgggtcaca agtctaggat tcaagcattt caccttgcattt ttgagacgtt ttgttagtgc 7260
 atacttagttt atatgttgc gggatgtttt atccagaaga tattcaggac tatttttgc 7320
 tgggcttaagg aatttgcattt gatttgcattt gtttgcaggca ttcacatgtt ttacatgtt 7380
 gaatttggatg cacttgcata tctcaataa tctcaataa tggcgttccctt tttaaaaaag cccttgcct 7440
 ttatcacccctt gtttgcataa taattttgtt tcaaagaaat acttgggtt atctcctttt 7500
 gacaacaataa gcatgttttca aagccatattt tttttccctt tttttttttt tttttggttt 7560
 ttcgagacag ggtttctctg tataccctg gctgtccctg aactcaactt gtagaccagg 7620
 ctggcctcga actcagaaat ccgcctgcct ctgcctcctg agtgcgggaa taaaaggcgt 7680
 gcaccaccac gcctggctaa gttggatatt ttgttatataa actataacca atactaactc 7740
 cactgggtgg atttttgcattt cagtcagtag tcttaatgttgc tctttattgg cccttcattt 7800
 aaatctactg ttcactctaa cagaggctgt tggtagtactgtt ggcacttaag caacttccta 7860
 cggatataact agcagattaa gggtcaggga tagaaacttag tctagcgttt tggatataa 7920
 ccagctttat actacccctt tctgatagaa atatttcagg acatcttagag tggtagtataa 7980
 ggtttagtgc aagtttataa ggaacttgcattt gtttgcattt tttttttttt tttttggttt 8040
 gagaattaaa attttgcattt aagtgtgtt gagccacttgc gatgttgc tttttttttt tttttggttt 8100
 ttcttaagga accttccctt attgcctca acactgcacc acatttggc tctgttgc 8160
 atttgcattt ctcttaatgtt ctttaatgtt gtttgcattt tttttttttt tttttggttt 8220
 ccttagatc attcccttgcattt gacaggacag tggatgttttgc tttttttttt tttttggttt 8280
 gagcagcaac aggtcttgcattt gatcaacatg atgttgcattt tcccaagatg tggccatttt 8340
 tggatgttgcattt agtccaaat tataaaacca caacgttgcattt tttttttttt tttttggttt 8400
 ttgtatgtcattt gtttggattt ttcttaatgtt gtttgcattt tttttttttt tttttggttt 8460
 attaaacttgcattt taagtttgcattt ctttgcattt tttttttttt tttttggttt 8520
 aagtattgttgcattt gcttttttttgcattt tttttttttt tttttggttt 8580
 atttcccttgcattt agtccaaat tataaaacca caacgttgcattt tttttttttt tttttggttt 8640
 tggatgttgcattt tggatgttgcattt tttttttttt tttttggttt 8700
 atataaaaacttgcattt gacatgttgcattt agtgggttgcattt ctttgcattt tttttttttt tttttggttt 8760
 agagagtttgcattt atatagcatgc tcttttttttgcattt tttttttttt tttttggttt 8820
 atttgcattt gtttggattt gggatgttgcattt caatgttgcattt tttttttttt tttttggttt 8880
 tggatgttgcattt aatgtcaggac tggatgttgcattt tttttttttt tttttggttt 8940
 actagaaattt aaaaagcttgcattt aatgtcaggac tggatgttgcattt tttttttttt tttttggttt 9000

agaatccaat ttctacctt ttccaaatgg catactgtt acaataaat ccacagaagc 12840
 agttctcagt gggaggttgc agatatccca ctgaacagca tcaatggca aaccccggt 12900
 tggggggc tggagacaaa ggtaagatat ttcaatatat tttcccaagc taatgagatg 12960
 gctcggggc taatggact ggccattaaag tctcatgacc tgagcttgc ctcggggac 13020
 catgtggtaa aaggagagac ctaaatcctt cagttggact tcaatcttcc accctcatgt 13080
 ccacacacaa ataaatacaa taaaaacat tctgcagtcg aatttctaaa agggcgaat 13139

<210> 2
 <211> 5409
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: sequence of
 homology region

<400> 2
 caggccctcc gagcgtggg gagccgttct gtgagacagc cgggtacgag tcgtgacgct 60
 ggaaggggca agcgggtggt gggcaggaat ggggtccgccc ctgcagcaac cggaggggg 120
 gggagaaggg agcggaaaag tctccaccgg acgcggccat ggctcggggg ggggggggg 180
 gcggaggaggc gcttccggcc gacgtctcg ctgcgtattgg cttctttcc tcccgccgtg 240
 tgtgaaaaca caaatggcgt gtttgggttgc gctgttgcgtt aacggcagcc 300
 ggagtgcgca gcccggcga gcctcgctt gcccactggg tgggggggaa ggttaggtggg 360
 gtgaggcgag ctggacgtgc gggcgcggtc ggctctggc gggggggggg aggggaggg 420
 gggtcagcga aagttagctcg cgcgcgagcg gcccggccacc ctcccttcc tctgggggg 480
 tcgttttacc cggccggcgc cgggcctcg tgcgttgcgtt gctctcgaaa cccagaaaac 540
 tggcccttgc cattggctcg tggcgttgc aatttgcgttcc atccggccgc cagcgggggc 600
 ggcgaggagg cgctcccgagg ttccggccct ccctcgccgc cgcgcggcga ggtctggcc 660
 ggcgcggccct ggcgaacgtg gcaaggaaagcg cgcgcgtggg ggggggacgg gcaatggggc 720
 tgagcggctg cgggggggg gcaagcacttgc ttccgacttgc aatttgcgttcc aggggggg 780
 gctgagccag acctccatcg cgcactccgg ggagtggagg gaaggagcga gggctcgat 840
 gggctgtttt ggaggcagga agcacttgc ctcccaaaatgc cgctctgtt gtttatcgt 900
 aaggggagctg cagttggat ggcggggaga aggccgcacc cttctccggg gggggggggg 960
 gagttgttgc aatcccttctt gggagtttgc tgcgttgcctt tggcttcttgc gacccgcctt 1020
 gggcctgggaa gatcccttc cccctcttcc ctcgtatct gcaactccag tttttctaga 1080
 agatgggggg gagtcttctg ggcaggctt aaggcttacc tgggtgttgc gcttgcgtt 1140
 gcaaggggaaat tgaacaggtg taaaatttgc gggacaagac ttcccacaga ttttcgggtt 1200
 tgtcgggaaat ttttttataa gggcaaaata aggaaaatgg gaggatagg tgcgttgcgtt 1260
 gttttatgc agcaaaaacta cagtttataa ttgcgttgc tccgcctcg gatattttcc 1320
 atcgaggtttagt attaaagaca tgcttcccg agtttatac tcttcgtt gatccctt 1380
 ctacagtatg aaattacagt gtcgcgagtt agactatgtt aaccaatgg tttttttttt 1440
 taaagagccc agtacttcat atccatttctt cccgcctt ctcgcgtt atcaaaaatgt 1500
 atttttagaac actcattttt gccccattttt cattttattt actggcttac ccaaccccta 1560
 gacagagcat tggcattttt ctttccttgc tctttagaaatgt ctgtatgttcc atgaaaccag 1620
 acagatgtt tacatacacc acaaatttgc gctgttgcgtt gggcctcaac actgcgttc 1680
 ttttataact ctttagtaca ctttttttttgc atcccttgc ttttttttttgc atttttttttt 1740
 tctatcacct cttccgttgc tgggttttca catttttttttgc tatttttttttgc atttttttttt 1800
 ttacaacaat agatgttattt agaatccaaat ctaaaatgtt acttttttttgc cccatgtt 1860
 ctttttttttgc ttataaaatgtt agtatttttttgc ctttttttttgc ttttttttttgc 1920
 tgtctccccc ccataatttttgc ttttttttttgc ttttttttttgc ttttttttttgc 1980
 taaaaggta tatttttttttgc ttttttttttgc ttttttttttgc ttttttttttgc 2040
 tcatttttttttgc ttttttttttgc ttttttttttgc ttttttttttgc ttttttttttgc 2100
 ttttttttttgc ttttttttttgc ttttttttttgc ttttttttttgc ttttttttttgc 2160
 tggacttgcgt ttttttttttgc ttttttttttgc ttttttttttgc ttttttttttgc 2220
 agcttcttca ggacccatccaaat ttttttttttgc ttttttttttgc ttttttttttgc 2280
 gcaacaaatgg ttttttttttgc ttttttttttgc ttttttttttgc ttttttttttgc 2340
 tataataataa ctatccgggg ttttttttttgc ttttttttttgc ttttttttttgc 2400
 ttccagaatgtt ctttttttttgc ttttttttttgc ttttttttttgc ttttttttttgc 2460
 gggatctgtt gtttttttttgc ttttttttttgc ttttttttttgc ttttttttttgc 2520
 taaaatccccc ttcttcttctt ttttttttttgc ttttttttttgc ttttttttttgc 2580
 tactgttgcgtt atgaaataact ttttttttttgc ttttttttttgc ttttttttttgc 2640
 cttaaaggac ttttttttttgc ttttttttttgc ttttttttttgc ttttttttttgc 2700

gaggagccat aactgcagac ttgtggata cagaagacca atgcagactt taatgtcttt 2760
tctcttacac taagcaataa agaaaataaaa attgaacttc tagtaccccta tttgtttaaa 2820
ctgctagctt tacttaactt ttgtgctca tctatacaaa gctgaaagct aagtctgcag 2880
ccattactaa acatgaaagg aagtaatgat aattttggat ttcaaaaaatg tagggccaga 2940
gtttagccag ccagtgggtg tgcttgcctt tatgcctta atcccagcac tctggaggca 3000
gagacaggca gatctctgag tttgagccca gcctggctca cacatcaagt tctatctagg 3060
atagccagga atacacacag aaaccctgtt ggggaggggg gctctgagat ttcataaaat 3120
tataattgaa gcattcccta atgagccact atggatgtgg ctaaatccgt ctaccttct 3180
gatgagattt ggttatttt ttttctgtct ctgctgtgg ttgggtcttt tgacactgtg 3240
ggctttctt aaagcctcc tcctgccatg tggctcttg tttgctacta acttcccatg 3300
gcttaaatgg catggcttt tgccttctaa gggcagctgc tgagatttgc agcctgattt 3360
ccagggtggg gtggggaaat ctttcaaaca aaaaatgt ccttaattt tttttttaaa 3420
aaatgggtta tataataaaac ctcataaaat aatgatccc tcccctataa aagagctatt 3480
tttaaatgtg gtatctttag aaccaagggt atcgcttaat cagattttct agttcaaat 3540
tcaaattaag aatttctgac ttttaatgtt gctttcctg aggcagggtc tcactatgtt 3600
actaaagtcc tgcctgctt tgcctcctga aactaaagtcc tggcataatgtt taatactttt 3660
ggaacttgca ggtcagattt ttttataggg gtaaaatgtg ttcagaatgtt tgaaaaacttg 3720
aaaaaaaaagcc aggccctgtt gacatgtttt agagtagttt cttggcaggc tcctggtag 3780
aagaaactac agttaagggtt acctgtctt aatattccaa ataataatttc attcaagttt 3840
cggtgaatag gcagagttgg aaactaaaca ttcaagtgtat agttaaaggcc catgagatac 3900
gttttactc agaaggactt ctgggggtt taccttaggc tgattgtgt tcaaataaaac 3960
tttcatatat caaggcaaaa catgttataat taggtctttg tgggtttgtat ttttaatttt 4020
atgtcttaca ttgggtggaa ttgtataattt taacccttacc tataagagcac ttgtctgggt 4080
gaagtgtaga ctgtttgtt gtgtataacta aagatattca gactatttt tgactggct 4140
gagcatttag gggccctttag gcttgaattt ccttttttaa aaagccctg ttcttataca 4200
aaataacttgt ttggatctcc ttggacaac tagtggactca ctttgcacta tcctgtatcat 4260
cctttttttt ttttttttgg ttttttcgag ctggactca ctttgcatac ctttgcacta 4320
ctggactca ctttgcatac caggctggcc cctgactgccc gggattaaag gctgtccat 4380
cctgactgccc gggattaaag gctgtccat tataactata actccactgg ttttttttgc 4440
tataactata accaataacta actccactgg gtggacttta ttggcccttc attaaaatct 4500
tagtggactc taagcaactt cttacggata tactacgaga ttttttttgc 4560
ctagtcttagc gttttgtata cttaccagct ttatactacc ttgttctgtat agaaatattt 4620
caaggacatc ttttttttgc 4680
cacaagtcta ggagtcaagc atttcacccct 4740
gtttatatgt tgaggacat ttgttataatgtt 4800
aaggaattga ttctgattag gagtcactt ttttttttgc 4860
ccctgttttca tacataattt atgttataatgtt 4920
aatagcatgt ttcaagccca aatagcatgtt 4980
ccttttttttgc 5040
acagggtttc tctgtatagc cttggctgtc 5100
tcgaactcag aaatccgcctt gcctctgcctt 5160
ccacgcctgg ctaagttggaa ttttttttgc 5220
gtggatttt aatttcgtca gtagtcttta 5280
tagtggactc taagcaactt cttacggata tactacgaga ttttttttgc 5340
ctagtcttagc gttttgtata cttaccagct ttatactacc ttgttctgtat agaaatattt 5400
caaggacatc 5409

```
<210> 3
<211> 4413
<212> DNA
<213> Artificial Sequence
```

<220>
<223> Description of Artificial Sequence: Sequence of
Fluc-hygro insert

```
<400> 3
tcttaggtAAC cgatataccCT gcaggGGGTga cctgcacGTC tagggcgcAG tagtccaggG 60
tttccTGTat gatgtcatac ttatccTGTc cctttttttt ccacagcTCG cggttGAGGA 120
caaactCTTC goggtctttc cagtactcCT gcaggtgact gactgagTCG agatctgcGA 180
tctaaggtaAG cttggcattc cggtaCTgtt ggtaaAGGCA ccatGGAAGA cGCCAAaac 240
ataaaAGAAAG qcccGGGCGCC attctatccG ctggaaAGATG gaaccGCTGG agagcaactG 300
```


atacatctc cgtggatca ttgttttctt ctgttccca actttgtggt tctaagtact 4140
 gtggttcca aatgtgttag tttcatagcc tgaagaacga gatcagcagc ctctgttcca 4200
 catacaacttc attctcagta ttgttttgc aagttctaat tccatcagaa gctgactcta 4260
 gatcctgcag gaattcatat gaagttctta tactttctag agaataggaa cttcggaaata 4320
 gaaacttcaa aatgtcgcgg cgcggcgta accgaagttc ctatacttcc tagagaatag 4380
 gaacttcgga ataggaactt caagcttaag cgc 4413

<210> 4
 <211> 14947
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Targeting
 vector for Rosa26 locus with a Fluc-hygro insert

<400> 4
 cttagggataa caggtaata tagccgcggc aggccctccg agcgtggtgg agccgttctg 60
 tgagacagcc gggtagt cgtgacgctg gaaggggcaaa gcgggtggt ggcaggaaatg 120
 cggccgcacc tgcagcaacc ggagggggag ggagaaggga gcgaaaagt ctccaccgga 180
 cgcggccatg gtcgggggg gggggggcag cggaggagcg cttccggccg aegtctcg 240
 gctgatttgc ttctttctt cccggcgtgt gtgaaaacac aaatggcgtg ttttgggttgg 300
 cgttaggcgc ctgtcagttt acggcagccg gaggcgcag ccggccggcag cctcgctctg 360
 cccactgggt gggccgggag gtaggtgggg tgaggcgcag tggacgtgcg ggcgcgggtcg 420
 gcctctggcg gggccggggaa ggggagggag ggtcagcgaa agtagctcgc ggcgcagcgg 480
 cccggccaccc tcccttctt cttggggaggt cgtttaccc gccggccggc gggcctcg 540
 gtctgatttgg ctctcggggc ccagaaaact ggccttgcg attggctcg gttcgtgcaa 600
 gttgagtcca tccggccggcc agcgggggcg gcgaggaggc gtcggccctc 660
 ccctcggcccg cgcggccgcag agtctggccg cggcccccctg cgcaacgtgg caggaagcgc 720
 ggcgtggggg cggggacggg cagtagggct gaggcgcgtc ggggggggtg caagcacgtt 780
 tccgacttga gttgcctcaa gagggggcgtg ctgagccaga cctccatcgc gcactccggg 840
 gagttggaggg aaggagcgcag ggctcagttt ggtgttttgg gaggcaggaa gcacttgctc 900
 tcccaaagtgc gctctgagtt ttatcgtt aaggagctgc agtggagtag gggggggagaa 960
 ggcgcaccc ttctccggag gggggagggg agtggtaaa taccttctg ggagttctt 1020
 gctgcctctt ggctctcgag gaccgcctg ggcctggag aatcccttc ccctttccc 1080
 tcgtgatctg caactccagt ctttcttagt aaccgatatac cctgcagggg tgacctgcac 1140
 gtctaggccg cagtagtcca gggtttccctt gatgtatgtca tacttaccc ttcccttttt 1200
 ttcccacacgc tcgcgggttga ggacaaaactc ttccgggtct ttccctgtact cctgcagggt 1260
 actgacttag tcgagatctg cgatctaagt aagcttggca ttccgggtact gttggtaaaag 1320
 ccaccatggaa agacgcacaa aacataaaaga aaggccggc gccattctat ccgctggaaag 1380
 atggaaaccgc tggagagcaa ctgcataagg ctatgaagag atacgcctt gttcctggaa 1440
 caattgtctt tacagatgca catatcgagg tggacatcac ttacgttgcg tacttcgaaa 1500
 tggccgttcg gttggcggaa gctatgaaac gatatgggtt gatatcataat cacagaatcg 1560
 tcgtatgcag tggaaactct cttcaattct ttatgcccgt gttggccgcg ttatattatcg 1620
 gagttgcagt tgcggccgcg aacgacattt ataatgaacg tgaattgctc aacagtatgg 1680
 gcatttcgca gcctaccgtg gtgttgcgtt ccaaaaagggtt gttgcaaaaaa attttgaacg 1740
 tgcaaaaaaa gctcccaatc atccaaaaaaa ttattatcat ggattctaaa acggattacc 1800
 agggatttca gtcgtatgtac acgttgcgtca catctcatct acctcccggt ttaatgtat 1860
 acgattttgt gccagagttcc ttgcataagg acaagacaat tgcactgatc atgaactct 1920
 ctggatctac tggctctgcct aaaggtgtcg ctctgcctca tagaactgccc tgcgtgagat 1980
 tctcgcatgc cagagatctt atttttggca atccaaatcat tccggataact gcgattttaa 2040
 gtgttgcgttcc attccatcac ggttttggaa tgggttactac actcgatataatgttgc 2100
 gatttcgagt cgtcttaatg tatacgtttt aagaagagct gtttgcgttccagg agccttcagg 2160
 attacaagat tcaaagtgcg ctgttgcgttcc caacccttattt ctccttcttcc gccaaaagca 2220
 ctctgatttgc caaatacgat ttatcataatt tacacgaaat tgcttgcgtt ggcgtccccc 2280
 tctctaaggaa agtccggggaa gcggttgcctt agagggttccca tctgcgttccagg atcaggcaag 2340
 gatatgggtt cactgagact acatcagctt ttctgttcc acccgagggg gatgataaac 2400
 cgggcgcgggtt cggtaaaagtt gttccattttt ttgaagcgaa ggttgcgttccagg ctggataccg 2460
 gggaaaacgtt gggcggtttaat caaagaggcg aactgtgtgtt gagagggttccat atgattatgt 2520
 ccgggttatgtt aaacaatccg gaagcgacca acgccttgcgtt tgacaaggat gatggctac 2580
 attctggaga catacgatcc tggacgaaag acgaacactt cttcatcgat gaccgccttgc 2640
 agtctctgtat taagtacaaa ggctatcagg tggctccgc tgaattggaa tccatcttgc 2700

tccaaacaccc caacatcttc gacgcaggtg tcgcaggtct tcccgacgat gacgcccgtg 2760
 aacttcccgc cgccgttgtt gtttggagc acggaaagac gatgacggaa aaagagatcg 2820
 tggattacgt cgccagtcaa gtaacaaccg cgaaaaagtt gcgcggagga gttgtgttt 2880
 tggacgaagt accgaaaggt cttaccggaa aactcgacgc aagaaaaatc agagagatcc 2940
 tcataaaggc caagaaggcgc ggaaagatcg ccgtgttaatt cttagaccgt tcgagatcca 3000
 ggcgcggatc aataaaagat cattatccc aatagatctg tgggttgggtt tttgtgtgc 3060
 cttgggggag ggggaggcca gaatgaggcg cggccaaggg ggagggggag gccagaatga 3120
 cttgggggag ggggaggcgc agaatgaccc tgggggaggg ggagggccaga atgaggcgc 3180
 ccccccgtcc gtcgacgccc taaggccata gcggccgccc tgaggccgc ggcgatcgcc 3240
 taggggtaac cgaagttcct atactttca gagaatagga acttcgaaat agaaacttct 3300
 tataatctag aagatctgga tccacgattc gaggcccct gcaggtcaat tctaccgggt 3360
 aggggaggcg ctttcccaa ggcagtctgg agcatgcgt ttagcagccc cgctggcact 3420
 tggcgctaca caagtggcct ctggcctcgc acacattcca catccaccgg taggcggcaac 3480
 cggctccgtt ctttgggtgc cccttcgcgc cacccttctac tcctccctta gtcaggaagt 3540
 tccccccgc ccccgagctc gcgtcggtca ggacgtgaca aatggaaatc gcacgtctca 3600
 ctagtctcggt gcagatggac agcaccgtg agcaatggaa gcgggttaggc ctttggggca 3660
 gcggccaata gcagtttgc tccttcgtt tctgggtca gaggctggga aggggtgggt 3720
 cccggggggc gctcaggggc gggctcaggg gcggggggc ggcgaaggc tcctccgaggc 3780
 cccgcattct cgcacgcttc aaaagcgcac gtctggcg cttgttcctt ctccctcatc 3840
 tccgggcctt tcgacgatcc agccggcacc ataaaaaagc ctgaactcac cgcgacgtct 3900
 gtcgagaagt ttctgtatcgaa aagttcgac agcgtctccg acctgtatcgaa gctctcgaa 3960
 ggcgaagaat -ctcgatgttt cagcttcgtat gttaggaggc gtggatatgt cctgcgggt 4020
 aataagctcgcc cgcgtgggtt ctacaaagat cgttatgttt atcggcactt tgcacatggcc 4080
 gcgctccgc ttccggaaat gcttgacatt ggggaaattca gcgagggcct gacatttgc 4140
 atctcccgcc gtgcacaggg tgcacgttgc caagacctgc ctgaaaccga actgcccgc 4200
 gttctgcagc cggtcgcggaa ggccatggat gccatcgctg cggccatct tagccagac 4260
 agcgggttcg gcccatttcg accgcaagga atcggtaat acactacatg gctgtatttc 4320
 atatgcgcga ttgctgatcc ccatgtgtat cactggcaaa ctgtatggaa cgacaccgtc 4380
 agtgcgtccg tcgcgcaggc tctcgatgag ctgtatgttt gggccgagga ctgccccgaa 4440
 gtcggcacc tcgtgcacgc ggatttcggc tccaaacaatg tcctgcggaa caatggccgc 4500
 ataacagcgg tcattgactg gagcgaggcg atttcgggg attccaaata cgaggtcgcc 4560
 aacatcttct tctggaggcc gtgggtggcgt tggatggagc agcagacgcg ctacttcgag 4620
 cggaggcattc cggagcttgc aggtatcgcc cggctccggg cgtatatgtt cccgattgg 4680
 cttgaccaac tctatcagag cttgggttgcg ggcatttcg atgatgcagc ttgggcgcag 4740
 ggtcgatgcg acgcaatcgat cgcattccgaa gcccggactg tcggcgatc acaaatcgcc 4800
 cgcagaagcg cggccgtctg gaccgatggc tggatggaaatg tactcgccgat tagtgaaac 4860
 cgacgccccca gcactcgcc gaggatcgcc cggctccggg cgtatatgtt cccgattgg 4920
 taaaacaataa agatgtccac taaaatggaa gtttttcctg tcataactttt ttaagaagg 4980
 tgagaacaga gtacttacat tttgaatggaa aggattggag ctacgggggtt ggggggtgggg 5040
 tgggattaga taaatgcctg ctctttactg aaggctctt actattgtt tatgataatg 5100
 tttcatatgtt ggtatcata atttaaacaatc gcaaaaccaa attaaggcc agctcattcc 5160
 tcccactcat gatctataga tctatagatc tctcggtggaa tcattgtttt tctcttgatt 5220
 cccactttgtt ggttctaagt actgtgggtt ccaaattgtt cagtttcata gcctgaagaa 5280
 cgagatcagc agcctctgtt ccacatacac ttcatctca gtattttttt gccaagttct 5340
 aattccatca gaagctgact ctagatccgt caggaatttc tatgaatgtt cttactttc 5400
 tagagaatag gaacttcggaa ataggaactt caaaatgtcg cggcgcgcgg gtaaccgaag 5460
 ttcctataact ttcttagagaa taggaacttc ggaataggaa cttcaagctt aagcgtttaga 5520
 agatggccgg gagtcttctg ggcaggctt aaggctaaacc tgggtgtgtgg gcgttgtct 5580
 gcagggaaat tgaacagggc taaaatttggaa gggacaagac ttccacaga ttttcgggtt 5640
 tgtcgggaaat ttttttaata gggcaataa agggaaatgg gaggataggt agtcatctgg 5700
 ggttttatgc agcaaaacta cagggttata ttgcttgcg tccgcctcg agtattttcc 5760
 atcgaggttag attaaagaca tgctcaccgc agtttatac tctccgtttt gagatcctta 5820
 ctacagtatg aaattacagt gtcgcgatgtt agactatgtt agcagaattt taatcatttt 5880
 taaagagcccc agtacttcattt atccatttctt cccgctccctt ctgcagcctt atcaaaaggt 5940
 attttagaaactcattttt gccccattttt catttattat actggctt ccaaccctta 6000
 gacagagcat tggcattttc ctttcctgtt ctttagaaatg ctgtatgactc atgaaaccag 6060
 acagattgt tacatacacc acaaattcgatc gctgttagctg gggcctcaac actgcagttc 6120
 ttttataact ccttagtaca cttttgttgc atcctttgc ttgatcctta attttcgtt 6180
 tctatcacctt cttccgtcg tgggttccca catttggcc tatttcgtt ccagggagg 6240
 ttacaacaat agatgttattt agaatccaaat ctaaagctt aactttccact cccatgaatg 6300
 cctctctctt ttttctccat ttataaactg agtattaaac cattatgtt tccaggtgaa 6360
 tgtctctcc ccatattacc tgatgtatct tacatattgc caggctgata tttaagaca 6420
 taaaaggta tatttcattttt tggagccaca tggattgtt tactgcttac taaaattttt 6480

tcatttgtaca catctgtaaa aggtggttcc ttttggaaatg caaagttcag gtgtttgtt 6540
 tctttcctga cctaaggctc tggagcttgcatttttctt atttaagcag tgctttctct 6600
 tggactggct tgactcatgg cattctacac gttattgctg gtctaaatgt gattttgcca 6660
 agcttcttca ggacctataa ttttgcgttga ctttaggcca aacacaagta aatgattaa 6720
 gcaacaaatg tattttgaa gcttggttt tagttgttg tggtgtgt gcttggctc 6780
 tataataata ctatccaggc gctggagagg tggctcgag ttcaagagca cagactgctc 6840
 ttccagaagt cctgagttca attccagca accacatgtt ggctcacaac catctgtat 6900
 gggatctgat gccccttctt ggtgtgtctg aagaccacaa gtgtatcac attaaataaa 6960
 taaatcctcc ttcttcttctt tttttttttt tttaaagaga atactgtctc cagtagaatt 7020
 tactgaagta atgaaataact ttgtgtttgt tccaaatatgg tagccaataa tcaaattact 7080
 cttaaggcac tggaaatgtt accaaggAAC taatttttat ttgaagtgtt actgtggaca 7140
 gaggagccat aactgcagac ttgtggata cagaagacca atgcagactt taatgtctt 7200
 tctcttacac taagcaataa agaaataaaa attgaacttc tagtaccta tttgtttaaa 7260
 ctgctagctt tacttaactt ttgtgtctca tctatacAAA gctgaaagct aagtctgcag 7320
 ccattactaa acatgaaagc aagtaatgtt aattttggat ttcaaaaatg tagggccaga 7380
 gtttagccag ccagtgggtg tgctgcctt tatgcctta atcccagcac tctggaggca 7440
 gagacaggca gatctctgag tttgagccca gcctggctca cacatcaagt tctatctagg 7500
 atagccagga atacacacag aaaccctgtt ggggaggGGGG gctctgagat ttcataaaat 7560
 tataattgaa gcattcccta atgagccact atggatgtgg ctaaatccgt ctacctttct 7620
 gatgagatt gggtattatt ttttctgtct ctgctgttg tggtgtctt tgacactgtg 7680
 ggcttctttt aaaggccctt tcctgcatg tggctcttgg tttgctacta acttcccatt 7740
 gcttaaatgg catggcttt tgccttctaa gggcagctgc tgagatttgc agcctgatt 7800
 ccagggtggg gttgggaaat ctttcaaaaca ctaaaattgtt ctttaattttt tttttttaaa 7860
 aaatgggttataataaaac ctcataaaaat agttatgagg agtgaggtgg actaatatttt 7920
 aatgagtccc tcccctataa aagagctatt aaggctttt gtcttataact taacttttt 7980
 tttaaatgtt gtatcttttag aaccagggtt cttagagttt tagtatacag aaactgttgc 8040
 atcgcttaat cagattttct agttcaaat ccagagaatc caaatttttc acagccaaag 8100
 tcaaaattaag aatttctgac ttttaatgtt aatttgccta ctgtgaatat aaaaatgata 8160
 gctttcctg aggcaaggc tcactatgtt tctctgcctg atctgcaaca agatatgttag 8220
 actaaagttc tgcctgctt tgcctcctga atactaaggtaaaaatgttag taataactttt 8280
 ggaacttgcg ggtcagattc ttttataagg gacacactaa gggagcttgg gtgatagttg 8340
 gtaaaatgtt ttcaagtga tgaaaacttgaatttattt accgcacactt actttttaaa 8400
 aaaaaaaagcc aggctgtta gagcatgctt aaggatccc taggacttgc tgacacacca 8460
 agagtagttt cttggcaggc tcctggtag gacatatttcaaaaacacaag gcagacaacc 8520
 aagaaactac agttaaagggtt acctgtctt aaaccatctg catatacaca gggatattaa 8580
 aatattccaa ataatatttc attcaagtt tccccatca aattgggaca tggatttctc 8640
 cggtaatag gcagagttgg aaactaaaca aatgttgggtt ttgtgattttg taaaattttt 8700
 ttcaagtgtt agttaaaggcc catgagatac agaacaaagc tgctatttgc aggtctctg 8760
 gtttataactc agaagcactt ctttgggtt ccctgacta tcctgatcat gtgcttagggc 8820
 taccttaggc tgattttgtt tcaaaataac ttaagttcc tgcaggta tgcataatgaa 8880
 tttcatatataa caaggccaaa catgttataat atgttaaaca tttgtactta atgtgaaagt 8940
 taggtctttg tgggtttgtt ttttaattttt caaaacctga gctaaataag tcatttttac 9000
 atgtcttaca ttgtgtggaa ttgtataattt gtggtttgc ggcacactc tctgacactt 9060
 taaccctacc tataagacac tttgctgggtt cacaagtctt gggatcaagc atttcacctt 9120
 gaagttgaga cgttttgcgtt gtgtataacta gtttataatgttggaggacat gtttacccag 9180
 aagatattca ggacttattttt tgactgggtt aaggaatttga ttctgatttttgcactgttagt 9240
 gggcatttag gttgaatttgcgttacttgcataatgttgcacttgcataatgttgcacttgc 9300
 ctttttttaa aaaggcccttgcgttacttgcacttgcacttgcacttgcacttgcacttgc 9360
 aaatacttgtt ttggatctcc ttttgcgttacttgcacttgcacttgcacttgcacttgc 9420
 cttttttttt ttttttttttgcgttacttgcacttgcacttgcacttgcacttgcacttgc 9480
 ctggaaactca ctggacttgcgttacttgcacttgcacttgcacttgcacttgcacttgc 9540
 ctttttttttgcgttacttgcacttgcacttgcacttgcacttgcacttgcacttgcacttgc 9600
 tataactata accaactata actccactgg gtttgcgttacttgcacttgcacttgcacttgc 9660
 gtggcttttca ttggcccttc attaaaatcttacttgcgttacttgcacttgcacttgc 9720
 tagtggactt taagcaactt ctttgcgttacttgcacttgcacttgcacttgcacttgc 9780
 ctgtcttgcgttacttgcacttgcacttgcacttgcacttgcacttgcacttgcacttgc 9840
 caggacatctt acgttgcgttacttgcacttgcacttgcacttgcacttgcacttgc 9900
 ctaccgggtt gggaggccgc ttttgcgttacttgcacttgcacttgcacttgcacttgc 9960
 gctgggcact tggcgttaca ctttgcgttacttgcacttgcacttgcacttgcacttgc 10020
 taggcgttaca ctttgcgttacttgcacttgcacttgcacttgcacttgcacttgc 10080
 agtcaggaag ttccccccttgcgttacttgcacttgcacttgcacttgcacttgc 10140
 agcacttgcgttacttgcgttacttgcacttgcacttgcacttgcacttgcacttgc 10200
 ctttggggcacttgcgttacttgcacttgcacttgcacttgcacttgcacttgc 10260

aagggggtggg tccgggggcg ggctcagggg cgggctcagg ggcggggcgg gcgcccgaa 10320
 gtcctccgga ggcggcgt tctgcacgct tcaaaagcgc acgtctgccc cgctgttctc 10380
 ctcttcctca tctccgggcc tttcgacctg cagccaatgc accgtcttg ccatcatggc 10440
 ctcgtacccc ggccatcaac acgcgtctgc gttcgaccag gctgcccgtt ctcgcggcca 10500
 tagcaaccga cgtagccgt tgccgcctcg ccggcagcaa gaagccacgg aagtccgccc 10560
 ggagcagaaa atgcccacgc tactgcgggt ttatatacgc ggtccccacg gatggggaa 10620
 aaccaccacc acgcaactgc tggtgccct gggttcgcgc gacgatatacg tctacgtacc 10680
 cgagccgatg acttactggc gggtgctggg ggcttcggag acaatcgcga acatctacac 10740
 cacacaacac cgcctcgacc agggtgagat atcggccggg gacgcggcgg tggtaatgac 10800
 aagcgcccaag ataacaatgg gcatgcctta tgccgtgacc gacgcggttc tggctcctca 10860
 tatacggggg gaggctggg gtcacatgc cccgcggcc gccctcaccc tcatcttcga 10920
 cccgcctatccc atcggccggcc tcctgtgcta cccggccgcg cggtaacctt tggcagcat 10980
 gaccccccag gccgtgctgg cgttcggtgc cctcatcccg ccgacccttgc cggcacccaa 11040
 catcggtttt gggggcccttc cggaggacag acacatcgac cgcctggcca aacgcgcagcg 11100
 ccccgccgag cggctggacc tggctatgtc ggctgctgatt cggcgcgtt acgggctact 11160
 tgccaatacg gtgcgggtatc tgcaagtgcgg cgggtcggtgg cgggaggact ggggacacgt 11220
 ttccggggacg gccgtgccc cccagggtgc cgagcccccag agcaacgcgg gcccacgacc 11280
 ccatatcggg gacacgttat ttaccctgtt tcggggcccccc gagttgctgg cccccaacgg 11340
 cgacctgtat aacgtgtttg cctgggcctt ggacgtctt gccaacacgc tccgttccat 11400
 gcacgtctt atcctggatt acgaccaatc gcccgcggc tgccgggacg ccctgctgca 11460
 acttacctcc gggatggtcc agacccacgt caccacccccc ggctccatac cgacgatatg 11520
 cgacctgggg cgeacgtttt cccggagat gggggaggct aactgagggg atcgatccgt 11580
 cctgtaaatc tgcagaaatt gatgtatcat taaacaataa agatgtccac taaaatggaa 11640
 gttttcctg tcatactttg ttaagaaggg tgagaacaga gtacctacat tttgaatgaa 11700
 aggattggag ctacgggggt ggggggtggg tgggattaga taaatgcctg ctctttactg 11760
 aaggctctt actattgttt tatgataatg tttcatagtt ggatatacata attaaacaaa 11820
 gcaaaaaccaa attaaggggcc agctcatcc tcccactcat gatctataga tctatagatc 11880
 tctcgtggaa tcattgttt tctcttgatt cccacttgcg gttctaagt actgtggttt 11940
 ccaaattgtt cagttcata gcctgaagaa cgagatcagc agcctctgtt ccacatacac 12000
 ttcatctca gtattgttt gcctgaattt aattccatca gaagctgact cttaggcgg 12060
 ctccaatttcg ccctatagtg agtcgttata caattcactg gccgtcggtt tacaacgtcg 12120
 tgactggaa aaccctggcg ttacccaact taatgcctt gcagcacatc ccccttcgc 12180
 cagctggcgt aatagcgaag agggccgcac cgatcgccct tcccaacagt tgccgagcct 12240
 gaatggcgaa tgggacgcgc cctgtagcgg cgcatataagc gccgggggtg tgggtgttac 12300
 ggcgcagcgtg accgctacac ttgccagcgc cctagcgcgc gtcctttcg ctttcttccc 12360
 ttcccttctc gccacgttcg cccgcttcc cgtcaagct ctaatcggg ggctccctt 12420
 agggttccga ttagtgcct tacggcacct cgacccaaa aaacttgatt agggtgatgg 12480
 ttacgttagt gggccatcgc cctgatagac gtttttcgc ctttgacgt tggagtccac 12540
 gttcttaat agtggactct tggccaaac tggacaaca ctcaccccta tctcggctca 12600
 ttctttgtat ttataaggga ttttgcgat ttccgcctat tggtaaaaaa atgagctgat 12660
 ttaacaaaaa ttacgcga attttacaa aatattaacg cttacaattt aggtggcact 12720
 ttccggggaa atgtgcgcgg aacccctatt tggatatttt tctaaataca ttcaaataatg 12780
 tatccgctca tgagacaata accctgataa atgctcaat aatattgaaa aaggaagagt 12840
 atgagtattc aacatttcg gtcgcccattt atccctttt ttgcggcatt ttgccttcct 12900
 gttttgctc acccagaaac gctggtaaaa gtaaaagatg ctgaagatca gttgggtgca 12960
 cgagtgggtt acatcgaact ggtctcaac agcggtaaga tccttgagag tttcgcggcc 13020
 gaagaacgtt ttccaaatgt gggactttt aaagttctgc tatgtggcgc ggtattatcc 13080
 cgtattgacg ccggcaaga gcaactcggg cggccatcacttctca gaatgacttg 13140
 gttgagttact caccagtac agaaaaagcat cttacggatg gcatgacagt aagagaattt 13200
 tgcagtgcgt ccataaccat ggtgataac actgcggcca acttacttct gacaacgatc 13260
 ggaggaccga aggagctaac cgcttttttgc cacaacatgg gggatcatgt aactcgcctt 13320
 gatcggtggg aaccggagct gaatgaagcc ataccaaacg acgagcgtga caccacgatg 13380
 cctgttagcaa tggcaacaac gttgcgcataa ctattaactg gcaactact tactcttagct 13440
 tcccgccaaac aattaataga ctggatggag gggataaaag ttgcaggacc acttctgcgc 13500
 tcggcccttc cggctggctg gtttattgtc gataaatctg gagccgggtga gctgtgggtct 13560
 cgcggatatac ttgcagact gggggccagat ggttaaggccct cccgtatctgc agttatctac 13620
 acgacgggg atcaggcaac tatggatgaa cggataatgcg agatcgctga gatagggtgcc 13680
 tcactgttta agcattggta actgtcagac caagttact catatatact ttagattgtat 13740
 ttaaaaacttc atttttaatt taaaaggatc tagtgaaga tccttttga taatctcatg 13800
 accaaaaatcc ttacacgtga gtttcgttc cactgagcgt cagacccgtt agaaaaagatc 13860
 aaaggatctt ttgagatcc ttttttctg cgcgtatct gctgcttgc aaaaaaaaaa 13920
 ccaccgctac cagcggtgg tttttggcc gatcaagagc taccactt tttccgaag 13980
 gtaactggct tcagcagagc gcagatacca aatactgtcc ttctagtgta gccgtagtt 14040

ggccaccact tcaagaactc ttagcacccg cctacatacc tcgctctgct aatcctgtta 14100
 ccagtggctg ctgcagtgg cgataagtgc tgcttaccg ggttggactc aagacgata 14160
 ttaccggata aggccgacgc gtcgggctga acggggggtt cgtgcacaca gcccagctt 14220
 gagcgaacga cctacaccga actgagatac ctacagcgtg agctatgaga aagccac 14280
 cttccgaag ggagaaaaggc ggacaggat cctgtaagcg gcagggtcgg aacaggag 14340
 cgcacgagg agcttccagg gggaaacgcc tggatctt atagtcctgt cgggttcgc 14400
 cacctctgac ttgagcgtcg atttttgtga tgctcgttag gggggcggag cctatggaa 14460
 aacgcacca acgcggcctt ttacgggtc ctggccttt gctggcctt tgctcacatg 14520
 ttcttcctg cgttatcccc tgattctgtg gataaccgtt ttaccgcctt tgagtgag 14580
 gataccgcgc gccgcagccg aacgaccggg cgacgcgat cagtgcgcg ggaagcggaa 14640
 gagcgcccaa tacgaaacc gcctctcccc gcgcgttggc cgattcatta atgcagctgg 14700
 cacgacagt ttcccgactg gaaagcgggc agtgagcgc acgcaattaa tgtgagttag 14760
 ctcactcatt aggacacccca ggcttacac tttatgtttc cggctcgtat gttgtgtgga 14820
 attgtgagcg gataacaatt tcacacagga aacagctatg accatgatta cgccaagcgc 14880
 gcaattaacc ctcactaaag ggaacaaaag ctgtcgagat cttagatatcg atggccatag 14940
 agttacg 14947

<210> 5
 <211> 4665
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Sequence of
 Rluc-H1-shRNA neo insert

<400> 5
 tctaggtaac cgatatccct gcaggggtga cctgcacgtc tagggcgcag tagtccagg 60
 tttccttgc gatgtcatac ttatcctgtc cctttttttt ccacagctcg cggttgagga 120
 caaactcttc gcggctttc cagtaactcct gcaggtgact gactgagtcg agatctgcg 180
 tctaagtaag cttggcattc cggtaactgtt ggttaagcca ccatggcttc caagggtgtac 240
 gaccccgagc aacgaaacgc catgatcaact gggcctcgt ggtggctcg ctgcaagcaa 300
 atgaacgtgc tggactcctt catcaactac tatgattccg agaagcacgc cgagaacgcc 360
 gtgattttc tgcattgttgc cgtgcctcc agtacactgt ggaggcacgt cgtgcctcac 420
 atcgagcccg tggcttagatg catcatccct gatctgatcg gaatgggtaa gtccggcaag 480
 agcggaaatg gctcatatcg ctcctggat cactacaagt acctcaccgc ttggttcgag 540
 ctgctgaacc ttccaaagaa aatcatctt gtgggccacg actggggggc ttgtctggcc 600
 tttcactact cctacgagca ccaagacaag atcaaggcca tcgtccatgc tgagagtgtc 660
 gtggacgtga tcgagtcctg ggacgagtgg cctgacatcg aggaggatat cgccctgatc 720
 aagagcgaag agggcgagaa aatggtgctt gagaataact tcttcgtcga gaccatgctc 780
 ccaagcaaga tcatgcggaa actggagcct gaggagttcg ctgcctacatc ggagccattc 840
 aaggagaagg gcgaggtagt acggcctacc ctctcctggc ctcgcagat ccctctcggt 900
 aagggaggca agccgcacgt cgtccagatt gtccgcact acaacgccta cttcggggcc 960
 agcgacgatc tgcctaagat gttcatcgat tccgaccctg gttcttttcaacgctatt 1020
 gtcgagggag ctaagaagtt ccctaacacc gagttcgtga aggtgaaggg cttccacttc 1080
 agccaggagg acgcgtccaga tggaaatgggt aagtacatca agagttcgat ggagcgcgtg 1140
 ctgaagaacg agcagtaatt cttagaccgtt tcgagatcca ggcgcggatc aataaaagat 1200
 cattattttc aatagatctg tggatgggtt ttttgggtgc cttggggggag ggggaggcca 1260
 gaatgaggcg cggccaagggg ggaggggggag gccagaatga cttggggggag gggggaggcc 1320
 agaatgaccc tgggggagggg ggaggccaga atgaggcgat gatccgtcgat cttaaatgg 1380
 gccaggggatc ttcaaggcaga cctacagcaa gttcgacaca aactcacaca acgatgcgc 1440
 actactcaag aactacgggc tgctctactg cttcaggaaag gacatggaca aggtcgagac 1500
 attcctgcgc atcgtcgatg gccgctctgt ggaggccgc tggatggcttct agctgcccgg 1560
 gtggcatccc tgtgaccctt ccccaactgtcc tctcctggcc ctggaaatggccactcc 1620
 gcccaccaggc cttgtccctaa taaaatggat ttgcatcatt ttgtctgtact aggtgtccctt 1680
 ctataatatt atgggggtggat ggggggggtt atggagcaag gggcaagttt ggaagacaa 1740
 ctgttagggcc tgcgggggtctt atggggaaacc aagctggatc gcaatggcactt aatcttggt 1800
 cactgcaatc tccgcctcctt gggttcaagc gattctcctg cctcagccctc ccgagttgtt 1860
 gggattccag gcatgcataa ccaggctcag ctaattttttggat agagacgggg 1920
 tttcaccata ttggccaggc tggatccaa ctccataatct caggtgatct acccaccttgc 1980
 gctcccaaaa ttgctggat tacaggcgtg aaccactgtt ccctccctg tccttctgtat 2040
 tttaaaaatggat cttaccaggc aggaggacgtt ccagacacag cataggctac ctggccatgc 2100

ccaacccgtg ggacatttga gttgcttgct tggcactgtc ctctcatcg 2160
tcagtagatg cctgttgaat taagcttatt taaataggcc ggcataact tcgtataatg 2220
tatgtataac gaagttatgg atcctcacag taggtggcat cgttccttc tgactgccc 2280
ccccccgcat gcgcgtcccg gatattgagc tccgaaccc tcggccctgcc gccgcccgtg 2340
ctccgtcgcc gcgcgcgc catgaaattc gaacgcgtac gtcataacc cgctccaagg 2400
aatcgccggc ccagtgtcac taggccccaa caccgcgc gcgtgcgc tggcaggaag 2460
atggctgtga ggacacagggg agtggcgc 2520
ggaaatcacc ataaaacgtga aatgtcttg gatttggaa tttataagt tctgtatgag 2580
accactctt cccaggattc caattcagcg ggagccacct gatgaagctt gatcggttgg 2640
ctctcgctga gtggaaatcc attttttct agactcgaga taacttcgta taatgtatgc 2700
tatacgaagt tatggcgcgc cgtaaccga agttcctata ctttctagag aataggaact 2760
tcgaaatagg aacttcttag gtcaattcta ccgggttaggg gagggcgtt tcccaaggca 2820
gtctggagca tgcgttttag cagccccgt gggcacttgg cgctacacaa gtggccctctg 2880
gcctcgacaca cattccacat ccaccggtag gcccacccg gctccgttct ttgggtggccc 2940
cttcgcgcaca ccttctactc ctcccctagt caggaagttt ccccccgcgc cgcaagctcgc 3000
gtcgtgcagg acgtgacaaa tggaaagtagc ttggggcagc ggcaatagc agctttgtctc 3120
caccgcgttag caatggaaagc gggtagggct ggggtgggtcc gggggcggc tcagggcgg 3180
cttcgcgttc tgggctcaga ggctgggaaag ctcggagggc ccggcattct gcacgcgttca 3240
gctcaggggc gggggcggc cccgaaggc acgtctcaact agtctcg 3060
aaagcgcacg tctgcgcgc tgttctctc ttccctatct ccgggcctt cgacctgcag 3300
ccaatatggg atcgccatt gaacaagatg gattgcacgc aggttctccg gccgcttggg 3360
tggagaggct atteggctat gactggcaca aacagacaat cggctgtct gatgccgcgc 3420
tggctcggt gtcagcgcag gggcgcggc ttcttttgc caagaccgac ctgtccggtg 3480
ccctgaatga actgcaggac gaggcagcgc ggctatcg 3540
cttcgcgcagc tgcgtcgac gttgtcactg aagcggaaag ggactggctg ctattggcgc 3600
aagtggcggg gcaggatctc ctgtcatctc accttgc 3660
tggctgtatgc aatgcggcgg ctgcatacgc ttgatccggc tacctgccc 3720
aagcggaaaca tgcgtatcgag cgagcacgtt ctcggatgga agccggctt gtcgatcagg 3780
atgatctgga cgaagagcat caggggctcg cgccagccga actgttcg 3840
cgcgcgtgcc cgacggcgcg gatctcg 3900
tcatgtggaa aatggccgc ttcttctggat tgacccatgg cgtatgc 3960
accgctatca ggacatagcg ttggctaccc gggatcgatc ggtgtggcgg 4020
gggctgaccg cttcctcg 3960
tctatcgct tcttgacgag ttcttctgag tcatcgact tgccggctg 4080
tcatgtatcta taaaacaata aagatgtcca gtatattgc tgaagagctt ggcggcaat 4140
gttaagaagg gtgagaacag agtacctaca tggatattgc tggatattgc 4200
tgggggtggg gtgggatttag ataaatgcct gctcttact gaaggctt tactattgt 4260
ttatgataat gttcataatg tggatatcat aatttaaca agaaaaacca aattaaggc 4320
cagctcattc ctcccactca tgatctatag aatctatagat ctctcg 4380
ttcttctgtat tcccactttg tggatcg 4440
agcctgaaga acgagatcg cagccctctgt tactgtgg 4500
tgccaagttc taattccatc agaagctgac tccacatata 4560
tctagagaat aggaacttcg gaataggaac tctagatccc ggcggcaat 4620
ttcaagctta agcgc 4665

```
<210> 6
<211> 15199
<212> DNA
<213> Artificial Sequence
```

<220>
<223> Description of Artificial Sequence: Targeting
vector for Rosa26 locus with Rluc-H1-shRNA neo
insert

```

<400> 6
ctaggataa caggtaata tagccgcggc aggcctccg agcgtggtgg agccgttctg 60
tgagacagcc gggtacgagt cgtgacgctg gaaggggcaa gcgggtggtgg cgcaggaatg 120
cggtccgcccc tgcagcaacc ggagggggag ggagaagggaa gcggaaaagt ctccacccga 180
cgccggccatg gctcgggggg gggggggcag cgaggagcg ctccggccg acgtctcg 240
gctgattggc ttctttcct cccgcccgtgt gtaaaaacac aaatggcgtg ttttggtgg 300
cgtaaggcgc ctgtcagttt acggcagccg gagtgcgcag cccggccgac cctcgctctg 360
cccaactgggtt qggggggggag gtaggtgggg tgaggcgcagc tggacgtgcg ggcgcggctcg 420

```

gcctctggcg gggcgaaaaa ggggagggag ggtcagcgaa agtagctgc gcgcgagcgg 480
 ccgcccaccc tccccctcct ctgggggagt cggtttaccc gccgcgcgc gggctcg 540
 gtctgattgg ctctcgaaaa ccagaaaaact ggccttgcc attggctcg tttcgtaaa 600
 gttgagtccttcc tccgcggcc aagcggggcg gcgaggagc gttcccaagg tccggccctc 660
 ccctcgcccc cgcgcgcag agtctggccg cgcgcctcg cgcaacgtgg caggaagcgc 720
 ggcgtgggg cggggacggg cagtagggct gagcggctgc gggcggtg caagcacgtt 780
 tccgacttga gttgcctcaa gaggggcgtg ctgagccaga cttccatcg gcactccggg 840
 gagtggaggg aaggagcgag ggctcagttg ggctgtttt gaggcaggaa gcacttgctc 900
 tcccaaagtc gctctgagtt gttatcagta agggagctgc agtggagtag gggggagaa 960
 ggccgcaccc ttctccggag gggggagggg agtgttgaa taccttctg ggagttctct 1020
 gtcgcctctt ggcttctgag gaccgcctcg ggcctgggg aatcccttcc ccctcttccc 1080
 tcgtgatctg caactccagt ctttctaggt aaccgatatc cctgcagggg tgacctgcac 1140
 gtctagggcg cagtagtcca gggttccctt gatgatgtca tacttatactt gtcctttttt 1200
 tttccacagc tcgcgggtga ggacaaactc ttgcggctt ttccagttact cctgcagggtg 1260
 actgactgag tcgagatctg cgatctaagt aagctggca ttccggtaact gttggtaaaag 1320
 ccaccatggc ttccaaagggtg tacgaccccg agcaacgcgg acgcattatc actgggcctc 1380
 agtggggc tcgctgcaag caaatgaacg tgctggactc cttcatcaac tactatgatt 1440
 ccgagaagca cgccgagaac gccgtgattt ttctgcattt taacgcgtcc tccagctacc 1500
 tggggaggca cgtcggtcct cacatcgac ccgtggctag atgcattatc cctgatctga 1560
 tcggaaatggg taagtccggc aagagcgggaa atgctcata tcgcctctg gatcactaca 1620
 agtacctcac cgcttgggtc gagctgctga accttccaaa gaaaatcatc tttgtgggc 1680
 acgactgggg ggcttgcgtc gccttcaactt actcctacga gcaccaagac aagatcaagg 1740
 ccatcgatcca tgctgagagt gtcgtggacg tgatcgatc ctgggacggg tggctgaca 1800
 tcgaggagga tatgcctcg atcaagagcg aagagggcgaa gaaaatgggtt ctgagaata 1860
 acttcttcgt cgagaccatg ctcccaagca agatcatgcg gaaactggag cctgaggagt 1920
 tcgctgccta cctggagccaa ttcaaggaga agggcgaggt tagacggctt accctctcct 1980
 ggcctcgca gatccctcgtt gtttaagggg gcaagccggg cgtcgccag attgtccgca 2040
 actacaacgc ctacccctcg gccagcgacg atctgcctaa gatgttcatc gatgtccgacc 2100
 ctgggttctt ttccaaacgctt attgtcgagg gagctaagaa gttccctaaaccgatgttc 2160
 tgaaggtgaa gggcttccac ttcaaggaga agggcgaggt tagacggctt accctctcct 2220
 tcaagagctt cgtggagcgc gtcgtgaaga acgagcgtttaatttcaatc agacccatc 2280
 ccaggcgccgg atcaataaaa gatcatttttcaatc agtgggggtt gttttttgtt 2340
 tgccttgggg gaggggggagg ccagaatgag ggcggccaa gggggagggg gaggccagaa 2400
 tgaccttgggg ggaggggggagg gccagaatgaa ctttgggggg gggggaggcc agaatgaggc 2460
 gcgatccgt cgacttaattt aaggccaggatcatttcaatc agacccatc agacccatc 2520
 acaaactcac acaacgatgaa cgcaactactt aagaactacg ggctgtctt ctgttttcagg 2580
 aaggacatgg acaaggtcgaa gacattccgtt cgcattgtgc agtgcggctc tttttttttt 2640
 agctgtggct tctagctgcg cgggtggcat cctgtgacc cctcccaatc gctctccctt 2700
 gccccttggaaat ttggccacttcc agtgccttgcgatcatttcaatc agacccatc 2760
 attttgcgtt acttaggtgtc cttctataat attatggggt ggaggggggtt ggtatggagc 2820
 aaggggcaag ttggaaagac aacctgttggccatcatttgcgtt gttttttttt 2880
 agtgcagttgg cacaatcttgcg gtcactgca atctccgcctt cctgggttca agcatttc 2940
 ctgcctcagc ctcccgatgtt gttgggattt caggcatgca tgaccatgtt cagcttattt 3000
 ttgtttttttt ggttagagacg gggtttccatcatttgcgtt gttttttttt 3060
 tctcagggttgc tctaccaccatcatttgcgtt gttttttttt 3120
 gctccctccctt ctgtcccttgcgatcatttgcgtt gttttttttt 3180
 cagcataggc tacctggccatcatttgcgtt gttttttttt 3240
 gtcctctcat gcgttgggtc cactcaggatcatttgcgtt gttttttttt 3300
 gccggccata acttcgtata atgtatgttgc gttttttttt 3360
 catcgatccctt ttctgactgcgatcatttgcgtt gttttttttt 3420
 ctctcgccctt gccgcggccatcatttgcgtt gttttttttt 3480
 gacgtcatca acccgcttca aggaatcgatcatttgcgtt gttttttttt 3540
 cgcgcgtcgccatcatttgcgtt gttttttttt 3600
 ttgcgtatgttgc gttttttttt 3660
 gaatcttata agtctgtat gttttttttt 3720
 cctgatgttgc gttttttttt 3780
 agataacttc gttttttttt 3840
 atacttcttata gttttttttt 3900
 gggggggccatcatttgcgtt gttttttttt 3960
 tggcgctaca caagtgccatcatttgcgtt gttttttttt 4020
 ccggctccgt tctttgggttgc gttttttttt 4080
 ttcccccggccatcatttgcgtt gttttttttt 4140
 actagtcgttgc gttttttttt 4200

agcggccaat agcagcttg ctccttcgt ttctgggctc agaggctggg aagggggtggg 4260
 tccggggcg ggctcagggg cgggctcagg ggcggggcg ggcggggcg gtcctccgga 4320
 gcccggcat tctgcacgct tcaaaagcgc acgtctgcg cgctgttctc ctcttcctca 4380
 tctccggcc ttgcacgtc cagccaatat gggatcgcc attgaacaag atggattgca 4440
 cgcagggttc cccggcgctt gggtggagag gctattcgcc tatgactggg cacaacagac 4500
 aatcggtgc tctgtatggc ccgtgttccg gctgtcagcg caggggcgc cggttcttt 4560
 tgtcaagacc gacgtgtccg gtgcctgaa tgaactgcag gacgaggcag cgcggctatc 4620
 gtggctggcc acgacggcg ttccttcgc agctgtgc gacgttgtca ctgaagcggg 4680
 aagggaactgg ctgtatggc gcaagtgcc gggcaggat ctctgtcat ctcaccttgc 4740
 tcctgccag aaagatatcca tcatggctga tgcaatgcgg cggctgcata cgcttgatcc 4800
 ggctacgtc ccattcgacc accaagcgaa acatcgcatc gagcgagcac gtactcggt 4860
 ggaagccggt ctgtcgatc aggtatgtt ggacgaagag catcaggggc tcgcggccagc 4920
 cgaactgttc gccaaggctca aggccgcata gcccgcacggc gaggatctcg tcgtgacccca 4980
 tggcgatgcc tgcttgccga atatcatgtt ggaaaatggc cgctttctg gattcatcg 5040
 ctgtggccgg ctgggtgtgg cggaccgcta tcaggacata gcgttgcta cccgtgatata 5100
 tgctgaagag ctggcgccg aatgggctga ccccttcctc gtgtttacg gatatcgccgc 5160
 tcccgattcg cagcgcatcg ccttctatcg ccttcttgac gagttttctt gaggggatcg 5220
 atccgctgt agtgtcgaga aattgtatgtt ctattaaaca ataaagatgtt ccactaaaaat 5280
 ggaagtttt cctgtcatac ttgttaaga aggttgagaa cagagtacctt acatttgaa 5340
 tggaggatt ggagctacgg ggggtggggt ggggtgggat tagataatg cctgtcttt 5400
 actgaaggctt ctttactatt gctttatgtt aatgtttcat agttggatata cataatttaa 5460
 aeaagcasaa ccaaattaag ggccagctca ttccctccac tcatgtctaa tagatctata 5520
 gatctctcg gggatcattt ttttcttctt gattccact ttgtgttctt aagtactgtg 5580
 gttccaaat gtgtcagttt catagctga agaacgagat cagcagccctc tttccacat 5640
 acacttcattt ctcagtattt ttttgcctaaag ttcttaattcc atcagaagct gactcttagat 5700
 cccgcgcggc agttctata ctttcttagag aataggaact tcggaatagg aacttcaagc 5760
 ttaagcgcta gaagatgggc gggagtttc tggcaggct taaaggctaa cctgggtgtg 5820
 gggcgttgc ctgcaggggc attgaacagg tggaaatttggg gaggacaag acttccacac 5880
 gattttcggg tttgtcgaa agtttttaa taggggcaaa taaggaaaat gggaggatag 5940
 gtagtcatct ggggttttat gcagcaaaac tacaggttat tattgttgc gatccgcctc 6000
 ggagtattt ccatcgaggt agattaaaga catgctcacc cggattttat actctcttc 6060
 tttagatcct tactacagta tgaaattaca gtgtcgag ttagactatg taagcagaat 6120
 tttatcattt tttaaagagc ccagtaatc atatccattt ctccgcctc ttctgcagcc 6180
 ttatcaaaat gtattttaga acactcattt tagccccattt ttcattttt atactggctt 6240
 atccaaaccc tagacagagc attggcattt tcccttcctt gatcttagaa gtctgatgac 6300
 tcatgaaacc agacagatata gttacatata ccacaaatcg aggctgtac tggggcctca 6360
 acactgcagt tctttataa ctcccttagta cacttttgc tgatcttttgc cttgtatctt 6420
 taattttcag tgcttatcac ctctccgtc agtgggttcc cacattggg cctattctca 6480
 gtccaggagg ttttacaaca atagatgtat tgagaatcca acctaaagct taactttca 6540
 ctcccatgaa tgccctcttc cttttctcc attataaaac tgagcttattt accattaatg 6600
 gttccagggtg gatgtctctt ccccatatta cctgtatgtat cttacatattt gccaggctga 6660
 tatttttaaga cattaaaagg tatatttcat tattgtgcca catggatttgc attactgtt 6720
 actaaaattt tgcttattgtt cccatgttgc aagggtgggtt cctttggaa tgccaaagttc 6780
 aggtgtttgt tgctttctt gacctaaggc ctgtgtacg tttttttt ctatataaagc 6840
 agtgcttctt ctggactgg ctgtactcat ggcattctac acgttattgc tggcttaaat 6900
 gtgattttgc caagcttctt caggacccat aattttgtt gacttgcggg caaacacaag 6960
 taaaatgtt aagaacacaaa tttttttttt tttttttttt tttttttttt tttttttttt 6980
 gtgtttgtc tctataataa cccatgttgc aagggtgggtt tttttttttt tttttttttt 7020
 cacagactgc tctttccagaa gtcctgatgtt caattcccaag caaccacatg gtggctcaca 7140
 accatctgtt atgggtatctt atgcctctt ctgggtgttc tgaagaccac aagtgttattc 7200
 acatataataa aataatctt ctttcttctt tttttttttt tttttttttt tttttttttt 7260
 tccagtagaa tttactgtt gttccatata ggttagccat 7320
 aatcaaattt ctctttaaggc actggaaatg ttaccaaggc actaattttt atttgaatgt 7380
 taactgttgc cagaggagcc ataaactgtcactt gttttttttt tttttttttt tttttttttt 7440
 tttatgttctt tttttttttt tttttttttt tttttttttt tttttttttt tttttttttt 7500
 tattttgttta aactgttgc tttttttttt tttttttttt tttttttttt tttttttttt 7560
 ctaagtctgc agccattactt aaacatgaaa gcaagttatg ataaattttgg atttcaaaaa 7620
 tttttttttt tttttttttt tttttttttt tttttttttt tttttttttt tttttttttt 7680
 tttttttttt tttttttttt tttttttttt tttttttttt tttttttttt tttttttttt 7740
 actctggagg cagagacagg cagatctgtt agtttgcggc cggccgttgc tacacatcaa 7800
 gttctatcta ggatagccag gaatacacaac agaaaccctg ttggggaggg gggctctgag 7860
 atttcataaaa attataattt aagcattccc taatgtgcca ctatggatgtt ggctaaatcc 7920
 gtctaccctt ctgtatgtt gttttttttt tttttttttt tttttttttt tttttttttt 7980
 tttgacactg tggctttctt tttttttttt tttttttttt tttttttttt tttttttttt 8040

taacttccca tggcttaaat ggcatggctt tttgccttct aagggcagct gctgagattt 8040
 gcagcctgat ttccagggtg gggttggaa atcttcaaa cactaaaatt gtccttaat 8100
 tttttttta aaaaatgggt tataataaa acctcataaa atagttatga ggagttaggt 8160
 gactaatat taaatgagtc cctccctat aaaagagcta ttaaggctt ttgtcttata 8220
 cttactttt tttttaaatg tggtatctt agaaccagg gtcttagagt ttagtatac 8280
 agaaactgtt gcatcgctt atcagattt ctagttcaa atccagagaa tccaaattct 8340
 tcacagccaa agtcaaatta agaatttctg actttaatg ttaatttgct tactgtgaat 8400
 ataaaaatga tagctttcc tgaggcaggg tctcaactatg tatctctgcc tgatctgcaa 8460
 caagatatgt agactaaagt tctgcctgct tttgtctctt gaataactaag gtaaaaatgt 8520
 agtaatactt ttggaacttg caggtcagat tctttatag gggacacact aagggagctt 8580
 gggtgatagt tggtaaaatg tggtcaagt gatgaaaact tgaatttata tcaccgcaac 8640
 ctactttta aaaaaaaaaag ccaggccctgt tagagcatgc ttaagggatc cctaggacatt 8700
 gctgagcaca caagagtagt tacttggcag gctcctgggt agagcatatt tcaaaaaaca 8760
 aggccagacaa ccaagaaact acagtttaagg ttacctgtct ttaaaccatc tgcataataca 8820
 cagggatatt aaaatattcc aaataatatt tcattcaagt tttccccat caaattggga 8880
 catggatttc tccgtgaat aggccaggtt gaaaaactaaa caaatgttg tttgtgatt 8940
 tgtgaaatgt tttcaagtg atagttaaag cccatgagat acagaacaaa gctgctattt 9000
 cgaggtctct tggttatac tcagaagcac ttcttgggt ttccctgcac tattctgatc 9060
 atgtgctagg cctaccttag gctgattgtt gttcaaataa acttaagttt cctgtcagtt 9120
 gatgtcatat gattcatat atcaaggcaa aacatgttat atatgttaaa catttgtact 9180
 taatgtgaaa gttaggtctt tgggggtttg atttttaattt ttc当地aaacct gagctaaata 9240
 agtcattttt acatgtctt catttgggtt aattgtataa ttgtggtttg caggcaagac 9300
 tctctgaccc agtaacccta cctatagagc acttgcgtgg gtcacaagtc taggagtcaa 9360
 gcatttcacc ttgaagttga gacgttttgt tagtgtatac tagtttatat gttggaggac 9420
 atgtttatcc agaagatatt caggactatt tttgactggg ctaagaaattt gattctgatt 9480
 agcaactgtt gtgagcattt agtggccctt aggcttgaat tggagtcaact tttatatctc 9540
 aaataatgtt ggcctttttt aaaaagccct tggttttat caccctgttt tctacataat 9600
 ttttggtaaa agaaaatactt gtttggatct ctttttgaca acaatagcat gtttcaagc 9660
 catattttt ttccctttttt tttttttttt tggtttttcg agacagggtt tctctgtata 9720
 gcccggctg tccttgaact cactttgttag accaggctgg cctcgaactc agaaatccgc 9780
 ctgcctctgc ctccctgagtg ccgggattaa aggctgcac caccacgcct ggctaagtt 9840
 gatattttgt tatataacta taaccaatac taactccact gggtgattt ttaattcagt 9900
 cagtagtctt aagtggctt tattggccct tcattaaaat ctactgttca ctctaacaga 9960
 ggctgttgtt actagtggca cttaaagcaac ttccctacgga tatactagca gattaagggt 10020
 cagggataga aactagtctt aacccgggtttaacttccactt ctttataacta ctttggctgt 10080
 atagaaatat ttcaaggacat ctagcacgtt ttaacttcgag ctgcaggattt cgagggcccc 10140
 ggcaggtaaa ttctaccggg tagggggaggc gctttccca aggctgtcg gaggcatgcgc 10200
 tttagcagcc ccgctggca cttggcgcta cacaagtggc ctctggctc gcacacattc 10260
 cacatccacc ggttagggccc aacccgggtcc gtttttgggt ggcccttcg cgccaccc 10320
 tactccccc ctagtcagga agttcccccc cggcccgacg ctcgcgtcg gaggacgtg 10380
 acaaattggaa gttagcacgtc tcactatgt ctgtcagatg gacagcaccc ctgagcaatg 10440
 gaagcgggtt ggcctttggg gcagcggcca atagcagtt tgctccctcg ctttctggc 10500
 tcagaggctg ggaaggggtg ggtccggggg cgggtcagg ggcgggctca gggggggggc 10560
 gggcgccccg aggtccctccg gaggccccggc atttcgcacg cttcaaaaagc gcacgtctgc 10620
 cgcgctgttc tccttcttctt catctccccc ctttcgacc tgcagccaaat gcaccgtcct 10680
 tgccatcatg gcctcgttacc ccggccatca acacgcgtct gcttcgacc aggctgcgc 10740
 ttctcgccgc catagcaacc gacgtacggc gttcgccct cggccggcagc aagaagccac 10800
 ggaagtccgc ccggagcaga aaatgcccac gctactgcgg gtttatatacg acggtcccc 10860
 cgggatgggg aaaaccacca ccacgcaact gctggtgccc ctgggttcgc ggcacgat 10920
 cgtctacgtt cccgagccga tgacttactg gcccggctg gggcttccg agacaatcgc 10980
 gaacatctac accacacaac accgcctcga ccagggtgag atatggccg gggacgcgc 11040
 ggtggtaatg acaagcggcc agataacaat gggcatgcct tatgcgtga cgcacgcgt 11100
 tctggctctt catatcgggg gggaggctgg gagtcacat gcccccccc cggccctcac 11160
 cctcatcttc gaccgcattt ccacgcgc cctccgttgc taccggccg cgcgttac 11220
 tatgggcagc atgacccccc aggccgtgt ggcgttcgtg gcccctatcc cgccgaccc 11280
 gcccggcacc aacatcgatc ttggggccct tccggaggac agacacatcg accgcctggc 11340
 caaacggccag cggccggccg agcggcttggc cttggctatg ctggctgcga ttgcggcg 11400
 ttacgggctt cttggcaata cggtgcggta tctgcagtgc ggcgggtcg ggcgggagga 11460
 ctggggacacag ctttcggggc cggccgtgcc gcccgggggt gcccggggcc agagcaacgc 11520
 gggccccacga ccccatatcg gggacacgtt atttaccctg tttcggggccc cggagttgt 11580
 gggcccccaac ggcgacctgtt ataacgtgtt tgcttggcc ttggacgtct tggccaaacg 11640
 cctccgttcc atgcacgtctt atatccttggaa ttacgaccaa tcgccccccg gtcggccgg 11700
 cggccctgttcc caacttacccctt ccgggtatgtt ccagaccaccc cccggctccat 11760

accgacgata tgccgacctgg cgccgcacgtt tgcccccggag atgggggagg ctaactgagg 11820
 ggatcgatcc gtcctgttaag tctgcagaaa ttgatgatct attaaacaat aaagatgtcc 11880
 actaaaatgg aagttttcc tgtcatactt tgtaagaag ggtgagaaca gagtacctac 11940
 attttgaatg gaaggattgg agctacgggg gtgggggtgg ggtgggatta gataaaatgcc 12000
 tgctcttac tgaaggctct ttactatgc tttatgataa tgtttcatacg ttggatataca 12060
 taatttaaac aagcaaaacc aaattaaggg ccagctcatt cctcccaactc atgatctata 12120
 gatctataga tctctcgtag gatcattgtt tttctcttga ttcccactt gtgggtctaa 12180
 gtactgttgt ttccaaatgt gtcagttca tagcctgaag aacgagatca gcagcctctg 12240
 ttccacatac acttcattct cagattgtt ttgccaagtt ctaattccat cagaagctga 12300
 ctctaggccg agctccaatt cgccctatacg tgagtctat tacaattcac tggccgtcgt 12360
 tttacaacgt cgtgactggg aaaaccctgg cgttacccaa cttaatcgcc ttgcagcaca 12420
 tcccccttc gccagctggc gtaatagcga agaggccgc accgatcgcc ttccccaaca 12480
 gttgcgcagc ctgaatggcg aatgggcacgc gcccgttagc ggcgcattaa gcgcggcggg 12540
 tgggtgggtt acgcccagcg tgaccgcac acttgcgcac gcccstagcgc cgcctcctt 12600
 cgcttcttc ctttccttgc tcgcccacgtt cgccggctt ccccgtaag ctctaaatcg 12660
 ggggctccct ttagggttcc gatttagtgc tttacggcac ctcgacccca aaaaacttga 12720
 ttagggtgat ggttacacgtt gtagggccatc gcccgtatag acggttttc gccctttgac 12780
 gttggagtcc acgttctta atagtgact cttgttccaa actggaaacaa cactcaaccc 12840
 tatctcggtc tattttttt atttataagg gattttgcgc atttcggcct attggtaaa 12900
 aaatgagctg atttaacaaa aatttaacgc gaattttaaac aaaatattaa cgcttacaat 12960
 ttaggtggca ctttcgggg aaatgtgcgc ggaaccccta tttgttatt tttctaaata 13020
 catcaaaata-tgtatccgct catgagacaa taaccctgtat aaatgttca ataatattga 13080
 aaaaggaaga gtatgagtt tcaacatcc cgtgtcgccc ttattccctt tttgcggca 13140
 ttttccttc ctgttttgc tcacccagaa acgctggta aagtaaaaga tgctgaagat 13200
 cagttgggtg caccgatggg ttacatcgaa ctggatctca acagcggtaa gatccttgag 13260
 agtttcgccc ccgaagaacg tttccaatg atgagcactt ttaaagttct gctatgtggc 13320
 gcggatttat cccgtattga cgccgggcaa gagcaactcg gtcgcgcac acactattct 13380
 cagaatgact tgggtgagta ctcaccagtc acagaaaagc atcttacgga tggcatgaca 13440
 gtaagagaat tatgcagtgc tgccataacc atgagtgata acactgcggc caacttactt 13500
 ctgacaacga tcggaggacc gaaggagcta accgctttt tgcacaacat gggggatcat 13560
 gtaactcgcc ttgatcggtt ggaaccggag ctgaatgaag ccataccaaa cgacgagcgt 13620
 gacaccacga tgccctgtac aatggcaaca acgttgcgc aactattaac tggcgaacta 13680
 cttaactctag cttcccgca acaattaata gactggatgg aggcggataa agttgcagga 13740
 ccacttctgc gctcgccct tccggctggc tggttattt ctgataaaatc tggagccggt 13800
 gagcgtgggt ctgcgggtat cattgcagca ctggggccag atggttaagcc ctcccgatc 13860
 gtagttatct acacgacggg gagtcaggca actatggat aacgaaatag acagatcgct 13920
 gagataggtg cctcaactgtat taagcatgg taactgtcag accaagttt ctcataata 13980
 ctttagattt atttaaaact tcattttaa tttaaaagga tcttagtgaa gatcctttt 14040
 gataatctca tgacaaaaat cccttaacgt gagtttctgt tccactgagc gtcagacccc 14100
 gtagaaaaaga tcaaaggatc ttcttgagat ccttttttc tgccgtataat ctgctgcttg 14160
 caaacaaaaa aaccaccgct accagcggtg gttgtttgc cggatcaaga gctaccaact 14220
 cttttccga aggttaactgg cttcagcaga ggcgcagatac caaataactgt cttcttagtg 14280
 tagccgtat taggcccacca cttcaagaaac tctgttagcac cgcctacata ctcgcgtctg 14340
 ctaatcctgt taccagtggc tgctgcccagt ggcgataagt cgtgtcttac cgggttggac 14400
 tcaagacgt agttaccggta aaggcgcacg cggtcgggct gaacgggggg ttcgtgcaca 14460
 cagcccagct tggagcgaac gacctacacc gaactgagat acctacagcg tgagctatga 14520
 gaaagcgcacca cgcttcccga agggagaaaag gcggacaggt atccggtaag cggcagggtc 14580
 ggaacaggag agcgcacgag ggagcttcca gggggaaacg cctggatct ttatagtcct 14640
 gtcgggtttc gccacctctg acttgcgggt cgttgcgtt gatgctcgac agggggggcgg 14700
 agcctatggaa aaaacgcccag caacgcggcc ttttacggt tcctggcctt tgctggcct 14760
 tttgctcaca tggttttcc tgcgttatcc cctgtatctg tggataaccg tattaccgcc 14820
 tttgagtgag ctgataccgc tcgcccgcacg cgaacgaccg agcgcacgc gtcagtgagc 14880
 gaggaagcgg aagagcgcacca aatacgcaaa cccgcctctcc cccgcgcgtt gccgattcat 14940
 taatgcagct ggcacgacag gtttcccgcac tggaaagcgg gcagtgcgcg caacgcatt 15000
 aatgtgagtt agctcaactca ttaggcacccc caggcttac actttatgtc tccggctcg 15060
 atgttgcgtt gattttgtgag cggtataacaa ttccacacag gaaacagcta tgaccatgt 15120
 tacgccaaggc ggcaccaattaa ccctcactaa agggaaacaaa agctgtcgag atctagat 15180
 cgatggccat agagttacg 15199

<210> 7
 <211> 4640
 <212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Sequence of
Rluc-U6-shRNA neo insert

<400> 7

tctaggtaac cgatatccct gcaggggtga cctgcacgtc tagggcgca tagtccagg 60
 tttccttgtat gatgtcatac ttatcctgtc cctttttt ccacagctcg cggtttagga 120
 caaactcttc gcggttttc cagtaactcct gcaggtgact gacttagtgc agatctgcga 180
 tctaagtaag cttggcattc cggtactgtt ggtaaagcca ccatggcttc caaggtgtac 240
 gaccccgagc aacgcaaacg catgatcact gggcctcagt ggtggctcg ctgcaagcaa 300
 atgaacgtgc tggactcctt catcaactac tatgattccg agaagcacgc cgagaacgcc 360
 gtgatttttc tgcattgtaa cgctgcctcc agtacactgt ggaggcacgt cgtgcctcac 420
 atcgagcccg tggctagatg catcatccct gatctgatcg gaatggtaa gtccggcaag 480
 agcgggaatg gctcatatcg cttcctggat cactacaagt acctcaccgc ttgggtcgag 540
 ctgctgaacc ttccaaagaa aatcatctt gtgggccacg actggggggc ttgtctggcc 600
 tttcactact cctacgagca ccaagacaag atcaaggcca tcgtccatgc tgagagtgtc 660
 gtggacgtga tcgagtcctg ggacgagtgg cctgacatcg aggagatat cggccctgatc 720
 aagagcgaag agggcgagaa aatggtgctt gagaataact tcttcgtcg aaccatgctc 780
 ccaagcaaga tcatgcggaa actggagcct gaggagttcg ctgcctaccc ggagccatcc 840
 aaggagaagg gcgaggtagt acggcctacc ctcttcgtgc ctgcgtggat ccctctcggt 900
 aagggaggca agcccgacgt cgtccagatt gtcgcact acaacgccta cttcgggccc 960
 agcgacgatc tgcctaagat gttcatcgag tccgaccctg ggttcttttcaacgctatt 1020
 gtcgagggag ctaagaagtt ccctaacacc gagttcgtga aggtgaaggg cttccacttc 1080
 agccaggagg acgctccaga tggaaatgggt aagtacatca agagcttcgt ggagcgcgtg 1140
 ctgaagaacg agcagtaatt cttagcccgat tcgagatcca ggcgcggatc aataaaagat 1200
 cattattttc aatagatctg tttgttgggtt ttttgtgtgc cttgggggag gggggaggcca 1260
 gaatgaggcg cggccaaggg ggagggggag gccagaatga cttgggggag gggggaggcc 1320
 agaatgaccc tgggggaggg ggaggccaga atgaggcgcg gatccgtcg cttaaattaag 1380
 gccaggggatc ttcaagcaga cttacagcaa gttcgacaca aactcacaca acgatgacgc 1440
 actactcaag aactacgggc tgctctactg cttcaggaag gacatggaca aggtcgagac 1500
 attcctgcgc atcgtgcagt gcccgtctgt ggagggcagc tttggcttct agctgcccgg 1560
 gtggcatccc tttgacccct ccccaagtgtcc tctcctggcc ctggaaatgg ccaactccaa 1620
 gcccaccacg cttgtcctaa taaaattaag ttgcatcatt ttgtctgact aggtgtccctt 1680
 ctataatatt atgggggtgg ggggggtggg atggagcaag gggcaagttt ggaagacaac 1740
 ctgttagggcc tgcgggggtct atttggaaacc aagctggagt gcagttgcac aatcttggct 1800
 cactgcaatc tccgcctctt gggttcaagc gattctctg cctcagccctc cccgatgtt 1860
 gggattccag gcatgcataa ccaggctcag ctaatttttggg ttttttttttggg agagacgggg 1920
 tttcaccata ttggccaggg tggtctccaa ctccataatct caggtatct accccacctt 1980
 gcctcccaaa ttgtctggat tacaggcggt aaccactgtt ccctccctg tccttctgt 2040
 tttaaaataa ctataccacg aggaggacgt ccagacacag cataggctac ctggccatgc 2100
 ccaaccgggt ggacatttga gttgtttgtt tggcactgtc ctctcatgcg ttgggtccac 2160
 tcagtagatg cctgttgaat taagcttatt taaaataggcc ggcctataact tcgtataatg 2220
 tatgtatatac gaagttatgg atccagtggaa aagacgcgc ggcacaaacgc accacgtgac 2280
 ggagcgtgac cgcgcgccc gcccgggtc gggcaggaag agggccattt tcccatgatt 2340
 ccttcataatt tgcatatacg atacaaggct gtttagagaga taatttagt taatttgact 2400
 gtaaacacaaa agatattatg acaaaaatacg tgacgtggaa agtaataatt tcttgggttag 2460
 tttgcagttt taaaattatg ttttttttttggg gactatcata tgcttaccgt aacttggaaag 2520
 tatttcgatt tcttgcattt atatatcttggg tggaaaggac gaaacaccgg gattccaatt 2580
 cagcgggagc cacgtatgc agcttgcgtc ggtggctctc gctgagttgg aatccatttt 2640
 tttctagact cgagataact tcgtataatg tatgtatatac gaagttatgg cgcgcgggt 2700
 accgaagttc ctatacttcc tagagaatag gaacttcggg ataggaactt cttaggtcaa 2760
 ttctaccggg taggggaggg gcttttccca aggcgtctg gagcatgcgc tttagcagcc 2820
 cccgtggca cttggcgcta cacaagggttgc ctctggctc gcacacattc cacatccacc 2880
 ggttagggccc aaccggctcc gtttttttttggg gggcccttcg cggccacccctt tactcctccc 2940
 ctagtcggg agtttttttttcc cggccggccag ctgcgtcgat gcaggacgtg acaaatggaa 3000
 gtagcacgtc tcactagtct cgtgcagatg gacagcaccgc ctgagcaatg gaagcgggtt 3060
 ggcctttggg gcagcggccaa atagcagtt tgctccttcg ctttctgggc ttagaggctg 3120
 ggaagggggtt ggtccggggg cgggctcagg gggggctca gggggggggc gggggccggca 3180
 aggtcctccg gaggccccggc attctgcacg cttcaaaagc gcacgtctgc cgcgcgtt 3240
 tcctcttcctt catctccggg ctttcgacc tgagccaaat atggatcgg ccattgaaca 3300
 agatggatttgcacgcgatgtt cttccggccgc ttgggtggag aggctattcg gctatgactg 3360

ggcacaacag acaatcggt gctctgatgc cgccgtgttc cggctgtcag cgcaaaaa 3420
 cccgttctt tttgtcaaga ccgacctgtc cgggtccctg aatgaactgc aggacgaggc 3480
 agcgggcta tcgtggctgg ccacgacggg cgttccttgc gcagctgtc tcgacgttgt 3540
 cactgaagcg ggaaggact ggctgctatt gggcgaagtgc cggggcagg atctcctgtc 3600
 atctcacctt gctctgtccg cggcttaccc gaaaaagtatc catcatggct gatgcaatgc ggccgtgtca 3660
 tacgcttgc gcttgcgatc gcccatttgc ccaccaagcg aaacatcgca tcgagcggc 3720
 acgtactcg gatggaaagccg gtcttgcgatc tcaggatgtat ctggacgaaag agcatcagg 3780
 gctcgccca gccgaactgt tcgcccaggct caaggcgcgc atgcccgcg gcgaggatct 3840
 cgtcgaccatc catggcgatc cctgcttgcgaaatcatg gtggaaaatg gccgcgtttc 3900
 tggattcatc gactgtggcc ggctgggtgt ggcggaccgc tatcaggaca tagcgttgc 3960
 taccctgtat attgtcaag agcttggcgg cgaatgggct gaccgttcc tcgtgttta 4020
 cggtatcgcc gctcccgatt cgcagcgcatt cgccttctat cgccttcttgc acgagtttt 4080
 ctgagggat cgtccgtcgta taagtctgc gaaattgtatc atctattaaa caataaaatg 4140
 gtccactaaa atggaaagttt ttctgtcat actttgttaa gaagggtgag aacagagttac 4200
 ctacattttgc aatggaaagga ttggagatc ggggggtgggg gtgggggtggg attagataaa 4260
 tgcctgtctt ttactgaagg ctctttacta ttgttttatg ataatttttc atagttggat 4320
 atcataattt aaacaagcaa aaccaaaatc aggggccagct cattcctccc actcatgtatc 4380
 tatagatcta tagatctctc gtgggatcat ttttttctc ttgatttcca ctttgtggg 4440
 ctaagtactg tggtttccaa atgtgtcagt ttcatagcct gaagaacgag atcagcagcc 4500
 tctgttccac atacacttca ttctcagtat tgggggtggca agttctaattt ccatcagaag 4560
 ctgactctag atcccgccgc gaaatcccta tactttctag agaataggaa cttcggaaata 4620
 gaaatccaa gcttaagcgc 4640

<210> 8
 <211> 15174
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Targeting
 vector for Rosa26 locus with a Rluc-U6-shRNA neo
 insert

<400> 8

cttagggataa cagggtaata tagccgcggc agggccctccg agcgtgggtgg agccgttctg 60
 tgagacagcc gggtaacgagt cgtgacgtc gaaggggcaaa gcccgggtgg ggcaggaaatg 120
 cggccgcacc tgcagcaacc ggagggggag ggagaaggga gcccggaaatg ctccaccgg 180
 cgcggccatc gctccgggggg gggggggcag cggaggagcg cttccggccg acgtctcg 240
 gctgattggc ttctttctt cccgcgtgt gtggaaaacac aaatggcgtt ttttgggtgg 300
 cgttaaggcgc ctgtcagttt acggcagccg gagtgccgc ggcggccgcg ctcgcgtctg 360
 cccactgggt gggccggggag gttaggtgggg tgaggcgc ggcgcgggtcg 420
 gcctctggcg gggccgggggg gggggggag ggtcagcgaa agtagctcgc ggcgcgagccg 480
 ccccccaccc tcccccttcctt ctggggggagt ctgttttaccc gcccggcc gggcctcg 540
 gtctgattgg ctctcggggc ccagaaaact gccccttgc attggctcg tttcgttgc 600
 gttgagtcca tccggccggcc agcggggggcg gcgaggaggc gctccaggat tccggccctc 660
 ccctcggccc cgcggccgcg agtctggccg cgcggccctg cgcaacgtgg caggaagcgc 720
 gcgctggggg cggggacggg cagtagggct gagccgcgtc ggggggggtgg caagcacgtt 780
 tccgacttga gttgcctcaa gggggccgtg ctgagccaga cctccatcgc gcactccgg 840
 gagtgagggg aaggagcggc ggctcagttt ggttgcgttgg gaggcaggaa gcacttgctc 900
 tcccaaaggc gctctgatgtt gttatcgtt aaggagctgc agtggagtag gcccggggagaa 960
 ggccgcaccc ttctccggag ggggggggggg agtggatgttgc taccttctg ggagttctct 1020
 gctgcctctt ggcttgcgtt gaccgccttgc ggctggggag aatcccttcc cccttttccc 1080
 tcgtgtatctg caactccatc ctttcttaggt aaccgatatac cctgcagggg tgacctgcac 1140
 gtcttagggcg cagtagtcca gggtttccctt gatgtatgttca tacttatactt gtcctttttt 1200
 tttccacagc tcgctgggttgc ggacaaactc ttccgggttctt ccctggactt cctgcagggtg 1260
 actgactgag tcgagatctg cgtatctatc aagcttgc gttccggactt gttggtaaaatg 1320
 ccaccatggc ttccaaagggtt tacgaccccg agcaacgc gcaacgtatc actggccctc 1380
 agtgggtggc tcgctgcaag cttttttttttt gttttttttttt gttttttttttt 1440
 ccgagaagca cggccggaaac gcccgttattt ttctgtcatgg taacgttgc tccagctacc 1500
 tggggggggc cgtcgatgttgc cccatcgatc cccgtggactt atgcatcata cctgtatctg 1560
 tcggaaatggg taagtccggc aagagcgggaa atggctcata tcgccccttgc gatcactaca 1620
 agtacctcac cgcttgggttgc gagctgctga accttccaaa gaaaatcatac tttgtggggcc 1680

acgactgggg ggcttgtctg gccttcact actcctacga gcaccaagac aagatcaagg 1740
ccatcgcca tgctgagagt gtcgtggacg tgatcgagtc ctgggacgag tggcctgaca 1800
tcgaggagga tatcgccctg atcaagagcg aagagggcga gaaaatggtg cttgagaata 1860
acttctcgt cgagaccatg ctcccaagca agatcatgcg gaaactggag cctgaggagt 1920
tcgctgccta cctggagcca ttcaaggaga agggcgaggt tagacggct accctctcct 1980
ggcctcgca gatccctctc gttaaggag gcaagcccg a cgtcgtccag attgtccgca 2040
actacaacgc ctaccccg gccagcgacg atctgcctaa gatgttcatc gagtcgcacc 2100
ctgggttctt ttcaacagct attgtcgagg gagctaagaa gttccctaa ac acccgaggatc 2160
tgaaggtaa gggcctccac ttcagccagg aggacgctcc agatgaaatg ggtaagtaca 2220
tcaagagctt cgtggagcgc gtgctgaaga acgagcagta attctagacc gtttcgagat 2280
ccaggcgcgg atcaataaaa gatcattttt ttcaatagat ctgtgttgc gttttttgt 2340
tgcctgggg gaggggggagg ccagaatgag ggcggccaa gggggagggg gaggccagaa 2400
tgaccttggg ggagggggagg gccagaatga cttggggga gggggaggcc agaatgaggc 2460
gcggatccgt cgacttaatt aaggccaggg atcttcaga c agacctacag caagttcgac 2520
acaactacac acaacgatga cgcactactc aagaactacg ggctgtctca ctgcttcagg 2580
aaggacatgg acaaggctcg a gacattcctg cgcacatcgatc agtgcgcctc t gttggagg 2640
agctgtggct tctagctgccc cgggtggcat ccctgtgacc cctcccccagt gcctctcctg 2700
gccctgaaag ttgccactcc agtgcccacc agcctgtcc taataaaaatt aagttgcac 2760
atttgtctg actagggtgtc ttctataat attatgggt ggaggggggt ggtatggagc 2820
aaggggcaag ttgggaagac aacctgttagg gcctgcggg tctattggga accaagctgg 2880
agtgcagtgg cacaatcttg gctactgca atctccgcct cctgggttca agcgattctc 2940
ctgcctcagc cttcccgagtt gttggatcc caggeatgca tgaccaggct cagctaattt 3000
ttgtttttt ggttagagac gggttcacc atattggcca ggctggctc caactctaa 3060
tctcaggtga tctaccacc ttggcctccc aaattgtgg gattacaggc gtgaaccact 3120
gctccctcc ctgtcttctt gatttaaaa taactatacc agcaggagga cgtccagaca 3180
cagcataggc tacctggcca tgcccaaccg gtggacatt tgagttgctt gcttggact 3240
gtcctctcat gcgttgggtc cactcagtag atgcctgtt aattaagctt atttaaata 3300
gccggccata acttcgtata atgtatgcta tacgaagttt tggatccagt ggaaagacgc 3360
gcaggcaaaa cgcaccacgt gacggagcgt gaccgcgc c gagcccaag gtcggcagg 3420
aagagggcct attcccatg attcctcat atttgcatac acgataacaag gctgttagag 3480
agataattag aattaattt actgtaaaca caaagatatt agtacaaaat acgtgacgta 3540
gaaagtaata atttcttggg tagttgcag ttttttttatt atgtttttt atggactatc 3600
atatgcttac cgttaacttga aagtatttcg atttcttggc tttatataatc ttgtggaaag 3660
gacgaaacac cgggattcca attcagcggg agccacctga tgaagcttga tcgggtggct 3720
ctcgctgagt tgaatccat tttttctag actcgagata acttcgtata atgtatgcta 3780
tacgaagttt tggcgcgcgc gtaaccgaag ttctataact ttcttagagaa taggaacttc 3840
ggaataggaa ctcttaggt caattctacc gggtagggg ggcgttttc ccaaggcagt 3900
ctggagcatg cgttttagca gccccgctgg gcacttggcg ctacacaagt ggcctctgg 3960
ctcgacaca ttccacatcc accgttaggc gccaaccggc tccgttctt ggtggccct 4020
tcgcgcacc ttctactcct cccctagtca ggaagttccc ccccgccccg cagctcgct 4080
cgtcaggac gtgacaaaatg gaagtagcac gtctactag tctcgtgcag atggacagca 4140
ccgctgagca atggaagcgg gttaggcctt ggggcagcgg ccaatagcag ctttgctcct 4200
tcgcttctg ggctcagagg ctgggaaggg gtgggtccgg gggcgggctc aggggggggc 4260
tcagggcgg ggcggggcgc cgaaggctt ccggaggccc ggcattctgc acgcttcaaa 4320
agcgcacgtc tggcgcgctg ttctcctt cctcatctcc gggccttgc acctgcagcc 4380
aatatggat cggcatttga acaagatgga ttgcacgcag gtttccggc cgcttgggt 4440
gagaggctat tggctatga ctgggcacaa cagacaatcg gtcgtctga tgccgcgtg 4500
ttccggctgt cagcgcaggg ggcggccgtt cttttgtca agaccgaccc gtcgggtg 4560
ctgaatgaac tgcaggacga ggcagcgcgg ctatcgtggc tggccacgac gggcgttcc 4620
tgcgcagctg tgctcgacgt tgtcaactgaa gggggaaaggg actggctgtt attgggcgaa 4680
gtgcccgggc agatctccct gtcatctcac ttgtctctg ccgagaaaagt atccatcatg 4740
gctgatgcaa tgcggcggct gcatacgtt gatccggcta cctgcccatt cgaccaccaa 4800
gcaaaacatc gcatcgagcg agcacgtact cggatggaag ccggcttgcg cgatcaggat 4860
gatctggacg aagagcatca ggggctcgcg ccagccgaac tgttcgccag gctcaaggcg 4920
cgcatcccg acggcgagga ttcgtcgtg acccatggcg atgcctgtt gccgaatata 4980
atggtgaaa atggccgctt ttctgattc atcgaactgt gccggctgg t gttggcggac 5040
cgctatcagg acatagcggt ggctacccgt gatattgtcg aagagcttgg cggcgaatgg 5100
gctgaccgct tccctcgatc ttacgtatc gggctcccg attcgcagcg catcgcccttc 5160
tatcgccctt ttgacgagtt cttctgagg gatcgatccg ctgttaagtct gcaagaaattt 5220
atgatctatt aaacaataaa gatgtccact aaaatggaag ttttcctgt catactttgt 5280
taagaagggt gagaacagag tacctacatt ttgaatggaa ggattggagc tacgggggtg 5340
ggggtgggtt gggatttagat aaatgcctgc tctttactga aggctttta ctattgttt 5400
atgataatgt ttcatagttt gatatcataa tttaaacaag caaaacccaa ttaaggccca 5460

gctcattcct cccactcatg atctataagat ctatagatct ctcgtggat cattgtttt 5520
 ctcttgattc ccactttgtg gttctaaagta ctgtggttc caaatgtgtc agtttcata 5580
 cctgaagaac gagatcagca gcctctgtc cacatacact tcattctcag tattgtttt 5640
 ccaagttcta attccatcg aagctgactc tagatcccgc gccgaagttc ctatactttc 5700
 tagagaatag gaacttcgga ataggaactt caagcttaag cgctagaaga tgggcgggag 5760
 tcttcgggc aggctaaag gctaacctgg tgtgtggcg ttgtcctgca ggggaattga 5820
 acagggttaa aattggaggg acaagactc ccacagattt tcggttttgt cgggaagtt 5880
 ttaaataggg gcaaataagg aaaatgggag gataggtagt catctgggt tttatgcagc 5940
 aaaactacag gtttattatg ctgtgatcc gcctcgagtttccatc gaggttagatt 6000
 aaagacatgc tcacccgagt ttatactct cctgcttgag atccttacta cagttatgaaa 6060
 ttacagtgtc gcgagttaga ctatgtaaagc agaattttaa tcattttaa agagccca 6120
 acttcataccat catttctcc gtccttctg cagccttatac aaaaggtatt tttagaact 6180
 catttttagcc ccattttcat ttattatact ggcttatcca acccctagac agagcattgg 6240
 cattttccct ttcctgatct tagaagtctg atgactcatg aaaccagaca gattagttac 6300
 atacaccaca aatcgaggct gtagctgggg cctcaacact gcagttctt tataactcct 6360
 tagtacactt tttgttgc tttgccttgc atccttaattt ttcagttgtct atcacccctc 6420
 ccgtcagtgg tgttccacat ttggccat tctcagttca gggagttta caacaataga 6480
 tgtatttgaga atccaaaccta aagcttaact ttccactccc atgaatgcct ctctccttt 6540
 tctccattta taaactgagc tattaaccat taatgttcc aggtggatgt ctccctccca 6600
 tattacctga tgtatcttac atattggcag gctgatattt taagacatta aaaggatata 6660
 ttcattattt agccacatgg tattgattac tgcttactaa aattttgtca ttgtacacat 6720
~~ctgtaaaagg~~ tggttccctt tggaaatgcaa agttcaggtg tttgttgc ~~ttctgtac~~ 6780
 aaggcttgc gagcttgc ttttcttatt taagcagtgc tttcttgc actggcttgc 6840
 ctcatggcat tctacacgtt attgctggc taaatgtat tttgcacccgc ttcttcagg 6900
 cctataattt tgcttgactt gtagccaaac acaagtaaaa tgattaagca acaaatgtat 6960
 ttgtgaagct tggtttttt gttgttgc tttgttgc tttgttgc tttgttgc tttgttgc 7020
 tccaggggct ggagagggtgg ctggagttc aagagcacag actgcttcc cagaagtctt 7080
 gagttcaatt cccagcaacc acatgggtgc tcacaaccat ctgtatggg atctgtatggc 7140
 ctcttctggt gtgtctgaag accacaatgt tattcacatt aaataaataa atccttcctc 7200
 ttcttctttt tttttttttt aaagagaata ctgtctccag tagaattttac tgaagtaatg 7260
 aaatactttt tttttttttt aatatgttag ccaataatca aattacttta taagcactgg 7320
 aaatgttacc aaggaactaa tttttattt aagtgtact gtggacagag gagccataac 7380
 tgcagacttgc tgggatacag aagaccaatg cagactttaa tttttttttt tttttttttt 7440
 gcaataaaaga aataaaaattt gaaacttcttgc tttttttttt aatatgttag cttttttttt 7500
 ttaacttttgc tgcttcatct atacaaatgtt gaaagcttgc tttttttttt aatatgttag 7560
 tgaaaagcaag taatgtataat tttttttttt aaaaatgttag ggccagagtt tagccagcc 7620
 gtgggtggc ttgccttttgc gcctttaatc ccagacttgc tttttttttt aatatgttag 7680
 ctcttgatctt gagcccagcc tttttttttt atcaaggatctt atctaggata gccaggaata 7740
 cacacagaaa ccctgttggg gggggggctt ctggatatttca ataaaattttt aatatgttag 7800
 ttcccataatg agccactatg gatgtggctt aatccgttca cttttttttt aatatgttag 7860
 tattttttttt tttttttttt tttttttttt tttttttttt aatatgttag 7920
 gcctccttcc ttgcctgtgg tttttttttt gttttttttt aatatgttag 7980
 ggcttttgc tttttttttt tttttttttt aatatgttag 8040
 gggaaatctt tcaaacaacta aataaaatgtt tttttttttt aatatgttag 8100
 aataaaacccctt ataaaatgtt tttttttttt aatatgttag 8160
 cctataaaaatg agcttatttttgc tttttttttt aatatgttag 8220
 tcttttagaaac caagggttttgc tttttttttt aatatgttag 8280
 attttcttagt ttcaaaatccat gagaatccaa attttcaca gccaatgtca aatataatgtt 8340
 ttcttgactttt taatgttataat tttttttttt aatatgttag 8400
 cagggtctca ctatgtatct tttttttttt aatatgttag 8460
 ctgttttttttgc tttttttttt aatatgttag 8520
 cagattctttt tttttttttt aatatgttag 8580
 caagtgtatgtt tttttttttt aatatgttag 8640
 ctttttttttgc tttttttttt aatatgttag 8700
 ggcaggctcc tttttttttt aatatgttag 8760
 taagggttacc tttttttttt aatatgttag 8820
 atatttcattt tttttttttt aatatgttag 8880
 gagttggaaa tttttttttt aatatgttag 8940
 taaagcccat gagatcaga acaaaatgtca tttttttttt aatatgttag 9000
 agcacttctt tttttttttt aatatgttag 9060
 ttgttgc tttttttttt aatatgttag 9120
 ggcaaaaat gtttatataatg tttttttttt aatatgttag 9180
 gtttgattttt taattttcaaa aacctgagct aatataatgtca tttttttttt aatatgttag 9240

ggtggaaattg tataattgtg gtttgcaggc aagactctct gacctagtaa ccctacctat 9300
 agagcacttt gctgggtcac aagtctagga gtcaagcatt tcacctgaa gttgagacgt 9360
 tttgttagtg tatactagtt tatatgttg aggacatgtt tatccagaag atattcagga 9420
 ctattttga ctgggctaa gaattgattc tgattagcac tgtagtgat cattgagtgg 9480
 ccttaggtct tgaattggag tcacttgcatt atctcaaaata atgctggcct tttttaaaaa 9540
 gcccctgttc tttatcaccc tgtttctac ataattttg ttcaaagaaa tacttgggg 9600
 gatctcctt tgacaacaat agcatgttt caagccatat ttttttcct ttttttttt 9660
 tttttgggtt tttcgagaca gggtttctct gtatagcctt ggctgtcctg gaactcactt 9720
 ttaggaccag gctggcctcg aactcagaaa tccgcctgcc tctgcctcct gagtgcggg 9780
 attaaaggcg tgcaccacca cgcctggcta agtggatat ttgttatata aactataacc 9840
 aatactaact ccactgggtg gatttttaat tcagtcagta gtcttaagtg gtctttattt 9900
 gcccctcatt aaaatctact gttcactcta acagaggctg ttggacttag tggcacttaa 9960
 gcaacttcct acggatatac tagcagatta aggtcaggg atagaaacta gtctagcgtt 10020
 ttgtataacct accagctta tactaccttgc ttctgtataga aatatttcg gacatctagc 10080
 acgtgttaac tcgagctgca ggattcgagg gccccggcag gtcaattcta cccggtaggg 10140
 gaggcgctt tcccaaggca gtggcctctg gcctcgacca cattccacat ccaccggtag ggcggcaaccg 10260
 gctccgttct ttggggcccc cttcgcgcca cttctactc ctcccttagt caggaagttc 10320
 cccccggccc cgcagctcgc gtctgtcagg acgtgacaaa tggaaagtgc acgtctcact 10380
 agtctcggtc agatggacag caccgctgag caatggaaac gggtaggcct ttggggcagc 10440
 ggccaatagc agcttgcctc ttgcgtttc tgggctcaga ggctggaaag gggtaggtcc 10500
 gggggcgggc tcagggggcg gtcagggggc gggggggggc cccgaaggcgt ctccggagggc 10560
 cccgcatttc gcacgcattca aaagcgcacg tctggcgcgc tttcttcctc ttctcatct 10620
 cccggcctt cgacgcgtc ccaatgcacc gtccctgcca tcatggcctc gtacccggc 10680
 catcaacacg cgtctcggtt cgaccaggct ggcgttctc gcccgcatacg caaccgacgt 10740
 acggcggttc gcccgcggc gcagcaagaa gccacggaa tccggccggc gcagaaaaatg 10800
 cccacgctac tgccgggtta tataagacggt cccacggga tggggaaaac caccaccacg 10860
 caactgctgg tggccctggg ttgcgcgcac gatatgcgtc acgtacccga gccgatgact 10920
 tactggcggt tgctggggcc ttccgagaca atcgcgaaca tctacaccac acaacaccgc 10980
 ctcgaccagg gtgagatatc ggccggggac gcccgggtgg taatgacaag cggccagata 11040
 acaatgggca tgccttatgc cgtgaccgac gccgttctgg ctcctcatat cggggggggag 11100
 gctggggagct cacatggccc gccccggcc ctcaccctca tcttcgaccg ccatccatc 11160
 gcccgcctcc tggctaccc ggccgcggg taccttatgg gcaagcatgac ccccaggccc 11220
 gtgctggcgt tcgtggccct catccggccg accttgcggc gcaccaacat cgtgcttggg 11280
 gcccggccgg aggacagaca catgaccgc ctggccaaac gccagcggccc cggcgagcgg 11340
 ctggacctgg ctatgctggc tgccatttcgc cgcgttacg ggctacttgc caatacgggt 11400
 cggtatctgc agtgcggcgg gtcgtggcgg gaggactggg gacagcttc ggggacggcc 11460
 gtgcccggcc aggggtccga gccccagagc aacgcggggc cacgacccca tatcggggac 11520
 acgttattt ccctgtttcg gggggggag ttgtggccc ccaacggcga cctgtataac 11580
 gtgtttgcct gggccttggc cgttggcc aaacgcctcc gttccatgca cgtctttatc 11640
 ctggattacg accaatgcgc cggccgtc cgggacgccc tgctgcaact tacctccggg 11700
 atggtccaga cccacgtcac cccccggc tccataccga cgatatgcga cctggcgcgc 11760
 acgtttggcc gggagatggg ggaggctaac tgaggggatc gatccgtcct gtaagtctgc 11820
 agaaattgtat gatctattaa acaataaaga tgccactaa aatggaaatg tttctgtca 11880
 tactttgtt agaagggtga gaacagagta cctacattttt gaatggaaagg attggagcta 11940
 cgggggtggg ggtgggggtgg gattagataa atgcctgctc tttactgaag gctcttact 12000
 attgctttat gataatgttt catagtggc tatcataatt taaacaagca aaaccaaatt 12060
 aaggggccacg tcatttcctcc cactcatgtat ctatagatct atagatctc cgtgggatca 12120
 ttgtttttct cttgattttcc actttgtgg tctaagtact gtgggttcca aatgtgtcag 12180
 tttcatagcc tgaagaacga gatcagcagc ctctgttcca catacaacttc attctcagta 12240
 ttgttttgc aagttctaat tccatcagaa gctgactcta ggccgagctc caattcgccc 12300
 tatagtgagt cgtattacaa ttcaactggcc gtcgttttac aacgtcgtga ctggggaaaac 12360
 cctggcgtta cccaaacttaa tgcgcctgca gcacatcccc cttcgcggc ctggcgtaat 12420
 agcgaagagg cccgcaccga tgcgccttcc caacagtgc gcagcgtgaa tggcgaatgg 12480
 gacgcgcctt gtagcggcgc attaagcgcg gcccgggtgg tggtagcgcg cagcgtgacc 12540
 gctacacttg ccagcgcctt acgttgcgtt ctttcgtt ctttcgtt ctttcgtt 12600
 acgttcggcg gctttcccg tcaagctcta aatcgggggc tccctttagg gttccgattt 12660
 agtgcatttc ggcacacgc ccccaaaaaa cttgattagg gtgtatggc acgttagtgg 12720
 ccatcgccct gataagacggt ttttcgcctt tgacgttgg agtccacgtt cttaatagt 12780
 ggactcttgt tccaaactgg aacaacactc aaccctatct cggcttattc ttttgattta 12840
 taagggattt tgccgatttc ggcctttagg taaaaaaatg agtgcattta acaaaaaattt 12900
 aacgcgaatt ttaacaaaat attaagcattt acaattttagg tggcactttt cggggaaaatg 12960
 tgcgcggaaac ccctatttgc ttattttctt aaatacatttca aatatgtat ccgctcatga 13020

gacaataacc ctgataaaatg cttcaataat attaaaaaaag gaagagtatg agtattcaac 13080
 attccgtgt cgccttatt cccttttg cgccatgg cttccgtt ttgctcacc 13140
 cagaaacgct ggtaaaatg aaagatgtg aagatcgtt gggtgcacga gtgggttaca 13200
 tcgaactgga tctcaacagc ggtaaatg cttccgtt ttgactgtt tgccccgaa gaacgtttc 13260
 caatgtatgag cactttaaa gttctgtat gtggcggtt attatccgtt attgacgccc 13320
 ggcaagagaca actcggtcgc cgcataacact attctcagaa tgacttgggtt gacttccac 13380
 cagtcacaga aaagcatctt acggatggca tgacagtaag agaattatgc agtgcgtcca 13440
 taaccatgag tgataacact gcccggact tacttctgac aacgatcgga ggaccgaagg 13500
 agctaaccgc tttttgcac aacatgggg atcatgtaac tcgcctgtat cggtggaaac 13560
 cggagctgaa tgaagccata cccaaacgacg agcgtgacac cacgtgcct gttagcaatgg 13620
 caacaacggt ggcggaaacta ttaactggcg aactacttac tctagcttcc cggcaacaat 13680
 taatagactg gatggaggcg gataaagggtt caggaccact tctgcgtcg gcccggccgg 13740
 ctggctgggtt tattgtgtat aaatctggag ccgtgtggcg tgggtctcg ggtatcattt 13800
 cagcaactggg gccagatgggt aagccctccc gtatcgtagt tatctacacg acggggagtc 13860
 aggcaactat ggatgaacga aatagacaga tcgctgagat aggtgcctca ctgattaagc 13920
 attggtaact gtcagaccaa gtttactcat atatacttta gattgattt aaacttcatt 13980
 ttaatattaa aaggatctag gtgaagatcc ttttgataa tctcatgacc aaaatccctt 14040
 aacgtgagtt ttcgttccac tgagcgtcag accccgtaga aaagatcaaa ggatcttctt 14100
 gagatcctt ttttctgcgc gtaatctgtc gcttgcacaaac aaaaaaaccac cggctaccag 14160
 cgggtgtttt tttggcgat caagagctac caactcttt tccgaaggta actggcttca 14220
 gcagagcgcga gataccaaat actgtcccttc tagtgttagcc gtatcgtagt caccacttca 14280
 agaactctgt agcacccgcct acatacctcg ctctgctaatt cctgttacca gtggctgtcg 14340
 ccagtggcga taagtctgtc gttaccgggt tggactcaag acgatagttt cccgataagg 14400
 cgcagcggtc gggctgaacg ggggttctgt gcacacagcc cagcttggag cgaacgcact 14460
 acaccgaaact gagataccta gaaaggcgga caggtatccg gtaagcggca ggtcggaaac aggagagcgc acgaggggagc 14580
 ttccaggggg aaacgcctgg tatcttata gtcctgtcg gtttcggccac ctctgacttg 14640
 agcgtcgatt tttgtatgc tcgtcagggg ggcggagcct atggaaaaac gccagcaacg 14700
 cggccctttt acggttccctg gcctttgtct gccttttgc tcacatgttc ttccctgctg 14760
 tatccctcta ttctgtggat aaccgtatta ccgccttga gtgactgtat accgctcgcc 14820
 gcagccgaac gaccgagcgc agcgactcag tgacgagga agcggaaagag cggccaaatac 14880
 gcaaaccggc tctcccccgcg cgttggccga ttcattaaatg cagctggcac gacaggtttc 14940
 ccgactggaa agcggggcagt gacgcacacg caattaaatgt gagttagctc actcattagg 15000
 caccccgaggc tttacactt atgcttccgg ctcgtatgtt gtgtggatt gtgagcggat 15060
 aacaatttca cacagggaaac agctatgacc atgattacgc caagcgcga attaaccctc 15120
 actaaaggga acaaaagctg tcgagatcta gatatcgatg gccatagagt tacg 15174

<210> 9
 <211> 4641
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Rluc tet01
 insert

<400> 9
 tcttaggtaac cgatatccct gcaggggtga cctgcacgtc tagggcgcag tagtccagg 60
 tttccctgtat gatgtcatac ttatcctgtc cttttttttt ccacagctcg cggttggaga 120
 caaactcttc gcggtcttcc cagtaactcct gcaggtgact gactgatcg agatctgcga 180
 tctaagtaag cttggcattc cggtaactgtt ggtaaagccca ccatgcttc caaggtgtac 240
 gaccccgagc aacgcacacg catgatcact gggcctcagt ggtggctcg ctgcaagcaa 300
 atgaacgtgc tggactccctt catcaactac tatgattccg agaagcacgc cgagaacgc 360
 gtgatttttc tgcattgttgc gactacctgt ggaggcacgt cgtgcctcac 420
 atcgagcccg tggctatgtt catcatccctt gatctgtatcg gaatgggtaa gtccggcaag 480
 agcgggaatg gctcatatcg cctcctggat cactacaatg acctcaccgc ttgggtcgag 540
 ctgctgaacc ttccaaagaa aatcatctttt gtggggccacg actggggggc ttgtctggcc 600
 tttcactact cctacgagca ccaagacaag atcaaggcca tcgtccatgc tgagagtgtc 660
 gtggacgtga tcgagtcctg ggacgagtgg cctgacatcg aggagatat cggccctgatc 720
 aagagcgaag agggcgagaa aatgggtctt gagaataact tcttcgtcga gaccatgctc 780
 ccaagcaaga tcatgcggaa actggagcctt gaggagttcg ctgcctaccc gtagccattc 840
 aaggagaagg gcgaggtagt acggcctacc ctctcctggc ctgcgtggat cccttcgtt 900

agggaggcga agcccgacgt cgtccagatt gtccgcaact acaacgccta ccttcgggccc 960
agcgacgatc tgcctaagat gttcatcgag tccgaccctg ggttctttc caacgctatt 1020
gtcgagggag ctaagaagtt ccctaaccacc gagttcgta aggtgaaggg cctccacttc 1080
agccaggagg acgctccaga tgaaatgggt aagtacatca agagctcgt ggagcgcgtg 1140
ctgaagaacg acgagaattt ctagaccgt tcgagatcca ggccgggatc aataaaagat 1200
cattatttc aatagatctg tgggttgggt ttttgggtgc cttgggggag ggggaggcca 1260
gaatgaggcg cgcccaaggg ggagggggag gccagaatga cttgggggag ggggaggccc 1320
agaatgaccc tgggggaggg ggaggccaga gtcgacaca aactcacaca acgatgacgc 1440
gccaggatc ttcaagcaga cctacagcaa actactcaag aactacgggc tgctctactg cttcaggaag gacatggaca aggtcgagac 1500
attcctgcgc atcgtgcagt gcccgtctgt ggagggcagc tgggtttct agctgcccgg 1560
gtggcatccc tggaccctt ccccaagtgcc tctctggcc ctggaagttt ccactccagg 1620
gccaccaggc cttgtccctaa taaaattaag ttgcatcatt ttgtctgact aggtgcctt 1680
ctataatatt atgggggtgg ggggggtggg atggagcaag gggcaagttt ggaagacaac 1740
ctgttagggcc tgcgggggtct attgggaaacc aagctggagt gcaagtggcac aatcttggct 1800
cactgcaatc tccgcctcctt ggggtcaagc gattctctt cctcagcctc ccgagttgtt 1860
gggattccag gcatgcataa ccaggctcag ctaattttgc tttttttggg agagacgggg 1920
tttcaccata ttggccaggc tggctccaa ctcctaattt caggtgatct acccaccttgc 1980
gcctccaaa ttgctgggat tacaggcgtg aaccactgtt ccctcccttgc tccttctgt 2040
tttaaataa ctataccagc aggaggacgt ccagacacag cataggctac ctggccatgc 2100
ccaaccggtg ggacatttga gttgcttgct tggactgtc ctctcatgcg ttgggtccac 2160
tcagtagatg -cctgttgaat -taagtttatt -taatagggc ggcataact tcgtataatg 2220
tatgctatac gaagttatgg atccagtgg aagacgcgc gcaaaaacgc accacgtgac 2280
ggagcgtgac cgcgcgcgc gcccgggtt cttcatatt tgcataatacg atacaaggctt gggcagggaaagggccttatt tcccatgatt 2340
gtaaacacaa agatattagt aaaaaatacg tttgcagttt taaaattatg tttagatagatg tatataatctt gtttagagaga taatttagaaat taatttgact 2400
tatgctatac gaagttatgg atccagtgg aagacgcgc gcaaaaacgc accacgtgac 2460
tttgcagttt taaaattatg tttagatagatg tatataatctt gtttagatagatg tatataatctt gtttagatagaa agtaataatt tcttgggttag 2520
tactctatca ttgatagatg tatataatctt gtttagatagatg tatataatctt gtttagatagaa agtaataatt tcttgggttag 2580
tcagcgggag ccacctgtat aagcttgcgc tttctagac tcgagataac ttgcgtataat gtttagatagaa agtaataatt tcttgggttag 2640
aaccgaagtt cttatacttt ctagagaata aaccgaagtt cttatacttt ctagagaata aaccgaatccgg aataggaact tcttaggtca 2700
attctaccgg gttagggagg cgctttccc aaccgaatccgg aataggaact tcttaggtca gtttagatagaa agtaataatt tcttgggttag 2760
cccgctggc acttggcgct acacaagtgg cttctggcct cgacatccgg aaccgaatccgg aataggaact tcttaggtca gtttagatagaa agtaataatt tcttgggttag 2820
cgtaggcgc caaccggctc cgtttttgg cttctggcct cgacatccgg aaccgaatccgg aataggaact tcttaggtca gtttagatagaa agtaataatt tcttgggttag 2880
cctagtcagg aagttcccccc cggccccggc aaccgaatccgg aataggaact tcttaggtca gtttagatagaa agtaataatt tcttgggttag 2940
agtagcacgt ctcaactagtc tcgtcgat aaccgaatccgg aataggaact tcttaggtca gtttagatagaa agtaataatt tcttgggttag 3000
aggccttgg ggcagggccc aatagcacgt gtttagatagaa agtaataatt tcttgggttag 3060
gggaagggggt ggtccgggg gcccggctcg aaccgaatccgg aataggaact tcttaggtca gtttagatagaa agtaataatt tcttgggttag 3120
aaggctctcc ggaggccccgg cttctggcct cgacatccgg aaccgaatccgg aataggaact tcttaggtca gtttagatagaa agtaataatt tcttgggttag 3180
ctcccttcc tcatctccgg gccttcgcac aaccgaatccgg aataggaact tcttaggtca gtttagatagaa agtaataatt tcttgggttag 3240
aagatggatt gcacgcaggc tctccggccg gggcacaaca gacaatcgcc tgctctgtat gtttagatagaa agtaataatt tcttgggttag 3300
ggccgggttct tttgtcaag accgacctgt cttctggcct cgacatccgg aaccgaatccgg aataggaact tcttaggtca gtttagatagaa agtaataatt tcttgggttag 3360
cagcggcgct atcgtggctg gcccggcgcgg tcaactgaagc gggaaaggggac tggctgtat ccatctcacct tgctctgcgca gtttagatagaa agtaataatt tcttgggttag 3420
catctcacct tgctctgcgca gagaatgtat atacgttga tccggcttacc tgcccatcg caccgtactcg gatggaaagcc ggttctgtcg gtttagatagaa agtaataatt tcttgggttag 3480
cacgtactcg gatggaaagcc ggttctgtcg ggctcgccgc agccgaactg ttccggcaggc tcaaggcgccgcatcgccatggc gtttagatagaa agtaataatt tcttgggttag 3540
tcgtcgatcg coatggcgat gcctgtctgc tggcgatcgat gtttagatagaa agtaataatt tcttgggttag 3600
ctggatcatcg cgtactgtggc cggctgggtg tggcgatcgat gtttagatagaa agtaataatt tcttgggttag 3660
ctaccctgtat tattgtgaa gagcttggcg caccatcgatcgccatggc gtttagatagaa agtaataatt tcttgggttag 3720
acggatcgatcg cgtccggatcgat gtttagatagaa agtaataatt tcttgggttag 3780
tctgatcgatcg cgtccggatcgat gtttagatagaa agtaataatt tcttgggttag 3840
tccatcgatcgat gtttagatagaa agtaataatt tcttgggttag 3900
tggcgatcgat gtttagatagaa agtaataatt tcttgggttag 3960
tggcgatcgat gtttagatagaa agtaataatt tcttgggttag 4020
tcgccttcata tcgccttctt gacgagttct agaaatttgat gatctattaa acaataaaaga 4140
tgcgtatcgat gtttagatagaa agtaataatt tcttgggttag 4200
tgcgtatcgat gtttagatagaa agtaataatt tcttgggttag 4260
tgcgtatcgat gtttagatagaa agtaataatt tcttgggttag 4320
tgcgtatcgat gtttagatagaa agtaataatt tcttgggttag 4380
tgcgtatcgat gtttagatagaa agtaataatt tcttgggttag 4440
tgcgtatcgat gtttagatagaa agtaataatt tcttgggttag 4500
tgcgtatcgat gtttagatagaa agtaataatt tcttgggttag 4560
tgcgtatcgat gtttagatagaa agtaataatt tcttgggttag 4620
tgcgtatcgat gtttagatagaa agtaataatt tcttgggttag 4680

ggcctttggg	gcagcggcca	atagcagctt	tgctccttcg	ctttctgggc	tcagaggcgt	3120
ggaagggggtg	ggtcgggggg	cgggctcagg	ggcgggctca	ggggcggggc	gggcgcggca	3180
aggtcctccg	gaggccccgc	attctgcacg	cttcaaaagc	gcacgtctgc	cgcgctgttc	3240
tcctcttct	catctccggg	ccttcgacc	tgcaagccaa	atgggatcg	ccattgaaca	3300
agatggattg	cacgcagggt	ctccggccgc	ttgggtggag	aggctattcg	gctatgactg	3360
gjcacaacag	acaatcggt	gctctgatgc	cgccgtgttc	cggctgtcag	cgcaggggcg	3420
cccggttctt	tttgtcaaga	ccgacctgtc	cggtgccctg	aatgaactgc	aggacgaggc	3480
agcgcggcgt	tcgtggctgg	ccacgacggg	cgttccttgc	gcagctgtgc	tcgacgttgt	3540
cactgaagcg	ggaagggact	ggctgctatt	gggcgaagtg	ccggggcagg	atctcctgtc	3600
atctcacctt	gctcctgccc	agaaagtatc	catcatggct	gatgcaatgc	ggcggctgca	3660
tacgcttgc	ccggctaccc	gcccattcga	ccaccaagcg	aaacatcgca	tcgagcgagc	3720
acgtactcgg	atggaagccg	gtcttgcga	tcagggatgt	ctggacgaa	agcatcaggg	3780
gctcgccca	gccgaactgt	tcgcccaggct	caaggcgcgc	atgcccgcac	gcgaggatct	3840
cgtcgtgacc	catggcgatg	cctgcttgc	aatatcatg	gtggaaaatg	ggcgctttc	3900
tggattcatc	gactgtggcc	ggctgggtgt	ggcggaccgc	tatcaggaca	tagcgttgc	3960
tacccgtat	attgtgaag	agcttggcgg	cgaatgggct	gaccgttcc	tcgtgcttta	4020
cggtatcgcc	gctcccgatt	cgcagcgcat	cgccttctat	cgccttcttgc	acgagtttt	4080
ctgagggat	cgatccgctg	taagtctgca	gaaatttgatg	atctattaaa	caataaaagat	4140
gtccactaaa	atggaagttt	ttcctgtcat	actttgttaa	gaagggttag	aacagagtac	4200
ctacatttt	aatggaagga	ttggagctac	gggggtgggg	gtgggggtgg	attagataaa	4260
tgcctgctt	ttactgaagg	ctctttacta	ttgctttatg	ataatgtttc	atagttggat	4320
atcataattt	aaacaageaa	ccaccaattt	agggccagct	catttctccc	actcatgatc	4380
tatagatcta	tagatctctc	gtgggatcat	tgttttctc	ttgatttcca	ctttgtgggt	4440
ctaagtaactg	tggtttccaa	atgtgtcagt	ttcatagcct	gaagaacgag	atcagcagcc	4500
tctgttccac	atacacttca	ttctcagtt	tgttttgc	agttctaattt	ccatcagaag	4560
ctgactctag	atcccgccgc	gaagttctta	tactttctag	agaataggaa	cttcggaaata	4620
gaaacttcaa	gcttaagcgc					4640

<210> 11
 <211> 3387
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: H1 tet5' shRNA
 vector

<400> 11
 agctcgatat cggccggcca taacttcgtta taatgtatgc tatacgaagt tatggatcct 60
 cacagtaggt ggcatcggtc ctttctgact gcccgcggcc cgcattccgt cccgcgatat 120
 ttagctccga accttcgcgc ctggccggcc cgggtctccg tcgcccggcc gcccggatgg 180
 aattcgaacg ctgacgtcat caacccgctc caaggaatcg cggggccagggt gtcactaggg 240
 gggAACACCC agcgcgcgtg cgccttggca ggaagatggc tggggggac agggggagggtgg 300
 cgccttgcac tatttgcatg tcgctatgtg ttctggggaa tcaccataaa cgtgaaattc 360
 cctatcagtg atagagatta taagttctgt atagagaccac tctttccag gattccaattt 420
 cagcggggagc cacctgtatg agcttgcattc ggtggcttc gctgagttgg aatccatttt 480
 tttcttaggt aacttcgtat aatgtatgtc atacgaagtt atggcgcgc ggtacccagg 540
 ttttggccccc tttagtgagg gtttaatttgc agcttggcgt aatcatggtc atagctgttt 600
 cctgtgtgaa attgttatcc gctcacaattt ccacacaaca tacgagccgg aagcataaaag 660
 tggtaaagctt ggggtgccta atgagtggc taactcacat taatttgcgtt ggcgtcaactg 720
 cccgtttcc agtccggaaa cctgtcggtc cagctgcattt aatgaatcg ccaacgcgc 780
 gggagaggcg gtttgcgtat tggggcgtct tccgcttcct cgctcaactga ctcgctgcgc 840
 tcgggtcggtc ggctgcggcg agcggatca gctcaactcaa agggcgtaat acggtttatcc 900
 acagaatcag gggataacgc agggaaagaaat atgtgagcaa aaggccagca aaaggccagg 960
 aaccgtaaaa aggcgcgtt gctggcggtt ttccatagggc tccgcggccccc tgacgagcat 1020
 cacaaaaatc gacgtcaag tcaaggggtgg cggaaacccga caggactata aagataaccag 1080
 gcgtttccccc ctggaaagtc cctcgtgcgc tctcgttgc tgcaccctggc gcttaccgg 1140
 tacctgtccg ctttctccccc ttggggaaac gttggcgctt ctcatagctc acgctgttagg 1200
 tatctcaggat cgggtgttaggt cgttcgctcc aagctgggtgtgtgcacga accccccgtt 1260
 cagcccgacc gctgcgcctt atccggtaac tattcgttgc agtccaaccc gttaagacac 1320
 gacttatcgc cactggcagc agccactggta aacaggatta gcagagcgag gtatgttaggc 1380
 ggtgctacag agttcttgaa gtggtgccct aactacggct acactagaag gacagtattt 1440

ggtatctgctgctgaa gccagttacc ttccggaaaaa gagttggtag ctcttgcattcc 1500
 ggcaaaacaaa ccacccgtgg tagcgggtgt tttttgttt gcaaggcagca gattacgcgc 1560
 agaaaaaaaaaag gatctcaaga agatccttgc atctttctca cggggctgtga cgctcagttgg 1620
 aacgaaaact cacgttaagg gatttggtc atgagattat caaaaaggat ctccacccat 1680
 atccctttaa attaaaaatg aagttttaaa tcaatctaaa gtatatatga gtaaaacttgg 1740
 tctgacaggta accaatgctt aatcgtgag gcacctatct cagcgatctg tctatttctg 1800
 tcataccatag ttgcctgact ccccggtgt tagataacta cgatacggga gggcttacca 1860
 tctggcccca gtgctgcaat gataccgcga gaccgcgtc caccgcgtcc agatttataca 1920
 gcaataaaacc agccagccgg aaggcccgag cgccagaatgt gtcctgcaac tttatccggc 1980
 tccatccagt ctattaatttgg tgcggggaa gcttagatgg gtagttcgcc agttaataatgt 2040
 ttgcgcacacg ttgttgcatt tgctacaggc atcgtgggtg caccgcgtc gtttggatg 2100
 gcttcattca gtcgggttc ccaacgatca aggccgttta catgatcccc catgttgc 2160
 aaaaaagccgg ttagctcctt cggtcctccg atcgttgcata gaagtaatgt ggcgcagtg 2220
 ttatcactca tggttatggc agcactgcatt aattcttta ctgtcatgccc atccgtaaaga 2280
 tgctttctg tgactggta gtaaccacc aagtcttgc gagaatagtg tatgcggcga 2340
 ccgagttgtc ttggccggc gtcaataccg gataataccg cgccacatag cagaacttta 2400
 aaagtgcctca tcattggaaa acgttctcg gggcgaaaac tctcaaggat cttaccgcgt 2460
 ttgagatcca gttcgatgtt acccactcg tgcaccact gatctcagc atctttact 2520
 ttcaccagcg tttctgggtt agcaaaaaca ggaaggcaaa atgcccggaaa aaagggaata 2580
 agggcgcacac gggaaatgtt aataactata ctcttcctt ttcaatattt ttagaaggatt 2640
 tatcagggtt attgtctcat gagccgatatac atatttgaat gtatttagaa aaataaaacaa 2700
 atagggtt cgcgcacatt tccccggaaa gtgccaccta aattgttgcgtt 2760
 tggtaaaatt cgcgttaat tttgtttaaa tcagcttattt tttaaccaa taggcccggaaa 2820
 tcggcaaaat cccttataaa tcaaaaagaat agaccgagat agggttgagt gttgttccag 2880
 tttggacaaa gagtcacta taaaagaacg tggactccaa cgtcaaggg cgaaaaaccg 2940
 tctatcaggc cgatggccca ctacgtgaac catcacccta atcaagttt ttgggggtcga 3000
 ggtggcgtaa agcactaaat cggaaacccta aaggggagccc ccgatttgcgtt 3060
 gaaagccggc gaacgtggcg agaaaggaaag ggaagaaaagc gaaaggagcg ggcgcgttaggg 3120
 cgctggcaag tggactggcgtc acgctgcgtc taaccaccac accccggcgtc cttatgcgc 3180
 cgctacaggc cgcgtcccat tcgccattca ggctgcgtt cttttggggaa gggcgatcgg 3240
 tggggcgttc ttgcgttattt cggccagctgg cggaaagggggg atgtgttgcgtt 3300
 gttggtaac gccaagggtt tcccagtcac gacgttgcata aacgacggcc agtgaattgt 3360
 aatacgcactc actataggc gaatttgg 3387

<210> 12

<211> 3387

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: H1 tet3' shRNA vector

<400> 12

agctcgatatacgccaa taacttcgtta taatgttatgc tatacgaagt tatggatcct 60
 cacagtaggt ggcacatcggtt ctttctgact gcccggcccc cgcacatgcgtt cccgcgtat 120
 tggactccgtt accttcgtcc cttggccgtc cgggtgtccg tcggccggc gcccgcgtt 180
 aattcgaacg ctgacgtcat caacccgttc caaggaatcg cggggccatgt gtcactatggc 240
 gggaaacacc cgcgcgtgtt cggccgttca ggaagatggc tggggggatggc 300
 cggccgttca tatttgcgtt tcgctatgtt ttctggggaaa tcaccataaa cgtgaaatgt 360
 ctttggattt gggaaatcttta taagtcctta tcgtgtatgtt agattccatg gattccat 420
 cagcggggatc cacctgtatgc agcttgcgtt ggtggcttc gctgagttgg aatccat 480
 tttcttagat aacttcgtat aatgttatgtt atacgaatgtt atggcgcgtt ggttccatgt 540
 ttttggatcc ttttagtggg gtttaatttcg agttgggtt aatcatgggtt atagctgttt 600
 cttgtgtgaa attgttatcc gtcacaaattt ccacacaaca tacggccgg aacatataa 660
 tggatggccat ggggtgcgtt atgagttgttgc taacttcgtt gtcactatgtt 720
 cccgcgttcc agtccggaaa cttgtgttgc cagctgttca aatgtatgg ccaacgcgtc 780
 gggagggccg gtttgcgtt tggggccgtt cttggccgtt cggccgtt gtcactatgtt 840
 tcggcgttcc ggctgcgttcc agcggatcatca gtcacttca aacggccgtt acggccgtt 900
 acagaatcag gggataacgc agggaaacatgttgcata aacggccgtt aacggccgtt 960
 aaccgttaaaa aggcgcgtt gtcggccgtt ttccataggc tccggccccc tgacgagcat 1020
 cacaaaaatc gacgttgcgtt tcagaggtgg cggactata aagataccat 1080

gcgtttcccc ctggaagctc cctcgtgcgc tctcctgttc cgaccctgcc gcttaccgg 1140
 tacctgtccg ccttctccc ttccggaaagc gtggcgctt ctcatacgctc acgctgttagg 1200
 tatctcaggc cggtgttaggt cggtcgctcc aagctgggt gtgtgcacga acccccccgtt 1260
 cagcccgacc gctgcgcctt atccggtaac tategtctt agtccaaccc gttaagacac 1320
 gacttatcgc cactggcagc agccactggt aacaggatta gcagagcag gtatgttaggc 1380
 ggtgctacag agttcttcaa gtgggtggct aactacggct acactagaag gacagtattt 1440
 ggtatctgcg ctctgtctt gccagttacc ttccggaaaaa gagttggtag ctcttgatcc 1500
 gcaaaacaaa ccaccgctgg tagcgggtgt tttttgttt gcaagcagca gattacgcgc 1560
 agaaaaaaag gatctcaaga agatccttg atctttcta cggggctga cgctcagttgg 1620
 aacgaaaact cacgttaagg gattttggtc atgagattat caaaaaggat cttcacctag 1680
 atccttttaa attaaaaatg aagttttaaa tcaatctaaa gtatatatga gtaaaacttgg 1740
 tctgacaggc accaatgtt aatcagttag gCACCTATCT cagcgatctg tctatttctg 1800
 tcatccatag ttgcctgact ccccgctgt tagataacta cgatacggga gggcttacca 1860
 tctggcccca gtgtgcata gataccgcga gaccacgct caccggctcc agatttata 1920
 gcaataaacc agccagccgg aaggggccgg cgccagaatgt gtcctgcaac tttatccggc 1980
 tccatccagt ctattaattt ttgcgggaa gcttagagtaa gtatgtcgcc agttaatagt 2040
 ttgcgcacag ttgttgccat tgctacaggc atcgtgggtg cacgctcgcc gtttggtagt 2100
 gcttcattca gctccgggtt ccaacgtca aggcgagttt catgatcccc catgttgc 2160
 aaaaaagccgg tttagtccctt cggtcctccg atcgttgtca gaagtaagtt ggccgcagtg 2220
 ttatcactca tggttatggc agcactgcat aatctcttta ctgtcatgcc atccgttaaga 2280
 tgctttctg tgactgggtgta gtactcaacc aagtatttctt gagaatagtg tatgcggcga 2340
 ccgagttgtt-cttgcgggg- gtcataacgg- gataataccg cgccacatag cagaacttta 2400
 aaagtgtctca tcattggaaa acgttctcg gggcgaaaaac tctcaaggat cttaccgctg 2460
 ttgagatcca gttcgatgtt acccactcgt gcacccaaact gatcttcagc atctttact 2520
 ttcaccagcg tttctgggtg agcaaaaaca ggaaggcaaa atgcccggaaa aaagggaata 2580
 agggcgacac ggaatgtt aataactcata ctcttcctt ttcaatattt ttgaagcatt 2640
 tattcagggtt attgtctcat gagcggatac atatttgaat gtatttagaa aaataaaacaa 2700
 ataggggttc cgccacatt tccccggaaa gtgccaccta aattgttaagc gttatattt 2760
 tggtaaaatt cgccgttaat ttttggtaaa tcagcttattt ttttaaccaa taggcccggaa 2820
 tcggcaaaat cccttataaa tcaaaaagaat agaccgagat aggggttgggt gttgttccag 2880
 tttggaaacaa gagtccacta ttaaagaacg tggactccaa cgtcaaaaggcg cggaaaaccg 2940
 tctatcaggg cgatggccca ctacgtgaac catcacccta atcaagttt ttgggggtcga 3000
 ggtgccgtaa agcaactaat cggaaacctt aaggggcccccc ccgattttaga gcttgacggg 3060
 gaaagccggc gaacgtggcg agaaaggaaag ggaagaaaagc gaaaggagcg ggcgcctagg 3120
 cgctggcaag tggtagcggc acgctgcgcg taaccaccac acccggccgc cttatgcgc 3180
 cgctacaggg cgccgtccat tcgccattca ggctgcgca ctgtggggaa gggcgatcgg 3240
 tgcggccctc ttgcatttta cgccagctgg cggaaagggggg atgtgtcgca aggcgattaa 3300
 gttggtaac gccagggtt tcccagtcac gacgttgtaa aacgacggcc agtgaattt 3360
 aatacgtactc actataggc gaatttgg 3387

<210> 13
 <211> 3387
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: H1 tet5' + 3'
 shRNA vector

<400> 13
 agctcgatat cggccggcca taacttcgtt taatgtatgc tatacgaagt tatggatcct 60
 cacagtaggt ggcatcggtt ctttctgtact gcccggcccc cgcattccgt cccgcgatat 120
 tgagctccga acctctcgcc ctgcccggc cgggtctccg tcgcccggc gcccggatgg 180
 aattcgaacg ctgacgtcat caacccgttc caaggaatcg cggggccagg gtcactaggg 240
 gggAACACCC agcgcgcgtg cggccctggca ggaagatggc tggtagggac agggggatgg 300
 cggccctggca tattttgtatcg tcgctatgtt ttctggggaaa tcaccataaa cgtgaaattt 360
 cctatcaggc atagagatta taatgtccat tcagtgatag agattcccg gattccaaattt 420
 cagcggggagc cacctgtatcg agcttgcgtcg ggtggctctc gctgagttgg aatccatttt 480
 tttcttaggt aacttcgtat aatgtatgtt atacgaagtt atggcgccgccc ggtacccaggc 540
 ttttgggttccc tttagtgggg gttaaatttgc agcttggcgt aatcatggc atagctgttt 600
 cctgtgtgaa attgttatcc gctcacaattt ccacacaaca tacgagccgg aagcataaaag 660
 tgtaaaggcctt ggggtgccta atgagtggc taactcacaat taatttgcgtt ggcgtcactg 720

cccgctttcc agtcggaaa cctgtcgtc cagctgcatt aatgaatcgg ccaacgcgcg 780
 gggagaggcg gtttgcgtat tggcgctct tccgcttcct cgctcaactga ctcgctgcgc 840
 tcggtcgttc ggctcgccg agcggtatca gctcaactaa aggccgtaat acggttatcc 900
 acagaatcaag gggataacgc aggaaagaac atgtgagcaa aaggccagca aaaggccagg 960
 aaccgtaaaa aggccgcgtt gctggcgtt ttccataggc tccgcccccc tgacgagcat 1020
 cacaaaaatc gacgctcaag tcagaggtgg cgaacccga caggactata aagataccag 1080
 gcgttccccc ctggaagctc cctcggtgc tctcctgttc cgaccctgcc gettaccgga 1140
 tacctgtccg ctttctccc ttccggaaagc gtggcgctt ctcatagctc acgctgttagg 1200
 tatctcaggc cggtgttagt cggtcgctcc aagctggct gtgtgcacga acccccccgtt 1260
 cagccgacc gctgcgcctt atccgtaac tattcgctt agtccaaccc ggttaagacac 1320
 gacttatcgc cactggcagc agccactggt aacaggatta gcagagcggag gtatgttagg 1380
 ggtgctacag agttcttggaa gtggggcct aactacggct acactagaag gacagtattt 1440
 ggtatctgcg ctctgtcgaa gccagttacc ttccggaaaaa gagttggtag ctcttgatcc 1500
 ggcaaaacaaa ccaccgctgg tagcggtgg tttttgttt gcaagcagca gattacgcgc 1560
 agaaaaaaaaag gatctcaaga agatccttg atctttcta cggggctctga cgctcagtgg 1620
 aacgaaaact cacgttaagg gattttggc atgagattt caaaaaggat cttcacctag 1680
 atcctttaa attaaaaatg aagttttaaa tcaatctaaa gtatatatga gtaaacttgg 1740
 tctgacagtt accaatgctt aatcagtgag gcacctatct cagcgatctg tctatttcgt 1800
 tcataccatag ttgcctgact ccccgctgt tagataacta cgatacggga gggcttacca 1860
 tctggcccca gtgtgcata gataccgcga gaccgcgcg caccggctcc agatttatca 1920
 gcaataaaacc agccagccgg aaggggccgag cgccagaatg gtcctgcacac ttatccgccc 1980
 tccatccagt ctattaattt ttgcggggaa gctagagtaa gtatgtcgaa gtttaatagt 2040
 ttgcgcacac ttgttgccat tgctacagggc atctgtgggt cacgctcgtc gtttggtagt 2100
 gcttcattca gctccgggtc ccaacgatca aggcgaggtt catgatcccc catgttgc 2160
 aaaaaagccgg ttagctcctt cgggtcctccg atctgtgtca gaagtaagtt ggccgcagtg 2220
 ttatcactca tggttatggc agcactgcat aattctctta ctgtcatgcc atccgtaa 2280
 tgctttctg tgactggta gtaactcaacc aagtcttct gagaatagtg tatgcggcga 2340
 ccgagttgtc ttgcggccgc gtcaataacgg gataataccg cgccacatag cagaacttta 2400
 aaagtgccta tcattggaaa acgttctcg gggcggaaac tctcaaggat cttaccgcgt 2460
 tttagatcca gttcgatgtt acccactcggt gcacccaaact gatcttcagc atctttact 2520
 ttcaccagcg ttctgggtg agcaaaaaaca ggaaggcaaa atgcccggaa aaagggaata 2580
 agggcgacac gggaaatgtt aataactata ctcttcctt ttcaatattt ttgaagcatt 2640
 tatcagggtt attgtctcat gagcggtatc atatttgaat gtatttagaa aaataaaacaa 2700
 ataggggttc cgccacatt tccccggaaa gtgccaccta aattgtaaac gttatattt 2760
 tggtaaaatt cgcttaaat tttgtttaaa tcagctcat ttttaaccaa taggcccggaa 2820
 tcggcaaaat cccttataaa tcaaaagaat agaccgagat agggttgagt gttttccag 2880
 ttggacaaa gagtccacta taaaagaacg tgactccaa cgtcaaggg cgaaaaacccg 2940
 tctatcaggc cgatggccca ctacgtgaac catcaccctta atcaagttt ttgggggtcga 3000
 ggtgcgcgtaa agcactaaat cgaaacccta aaggggggcc cggatttaga gcttgacggg 3060
 gaaagccggc gaacgtggcg agaaaggaaag ggaagaaacg gaaaggagcg ggcgcgtagg 3120
 cgctggcaag tgtacgtgtc acgctgcgcg taaccaccac accccggccgc cttaatgcgc 3180
 cgctacaggg cgctccat tcgccattca ggctgcgcga ctgttggaa gggcgatcgg 3240
 tgcgggcctc ttgcgttata cgccagctgg cggaaaggggg atgtgtcgca aggcgattaa 3300
 gttgggttaac gcccagggtt tcccagtcac gacgttgtaa aacgacggcc agtgaattgt 3360
 aatacgactc actataggc gaatttgg 3387

<210> 14
 <211> 7209
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:
 Fluc-GAGGS-tetR-hygro insert

<400> 14
 tcttaggttaac cgatatccct gcagggtga cctgcacgtc tagggcgccag tagtccagg 60
 ttcccttgcgat gatgtcatac ttatcctgtc cttttttttt ccacagctcg cgggttggagga 120
 caaactcttc gcggctttc cagttacttgc gcaaggtgact gactgagtcg agatctgcga 180
 tctaagtaag ctggcattc cggtactgtt ggtaaagcca ccatggaaga cgccaaaaac 240
 ataaaagaaag gcccggccgc attctatccg ctggaaagatg gaaccgcgtgg agagcaactg 300
 cataaggcta tgaagagata cggccctgggtt cctggaaccaa ttgctttac agatgcacat 360

atcgagggtgg acatcaacta cgctgagta ttcgaaaatgt ccgttcgggtt ggcagaagct 420
 atgaaacgat atgggctgaa tacaatcac agaatcgta tatgcagtga aaactcttt 480
 caattctta tgccgggtt gggcgcgtt tttatcgag ttgcagttgc gcccgcgaac 540
 gacatttata atgaacgtga attgctcaac agtatggca tttcgcagcc taccgtgggt 600
 ttcgtttcca aaaagggtt gcaaaaaatt ttgaacgtgc aaaaaaaagct cccaatcattc 660
 caaaaaatttta ttatcatgga ttctaaaacg gattaccagg gatttcagtc gatgtacacg 720
 ttcgtcacat ctcatctacc tcccgggttt aatgaatacg attttgcc agagtccttc 780
 gatagggaca agacaattgc actgatcatg aactcctctg gatctactgg tctgcctaaa 840
 ggtgtcgctc tgcctcatag aactgcctgc gtgagattct cgcatgccag agatcctatt 900
 tttggcaatc aaatcattcc ggatactgcg atttaagtg ttgttccatt ccatcacggt 960
 tttggaatgt ttactacact cggatattt atatgtggat ttcgagtcgt cttaatgtat 1020
 agatttgaag aagagctgtt tctgaggagc cttcaggatt acaagattca aagtgcgcgt 1080
 ctggtgccaa ccctattctc cttcttcgcc aaaagcactc tgattgacaa atacgattta 1140
 tctaatttac acgaaaattgc ttctgggtggc gctccctct ctaaggaagt cggggaaagcg 1200
 gttgccaaga ggttccatct gccaggtatc aggcaaggat atgggctcac tgagactaca 1260
 tcagctattc tgattacacc cgagggggat gataaaccgg gcgcggcgg taaaagttgtt 1320
 ccatttttg aagcgaaggt tggatctg gataccggga aaacgcgtgg cgtaatcaa 1380
 agaggcgaac tgggtgttag aggtcctatg attatgtccg gttatgtaaa caatccggaa 1440
 gcgaccaacg ccttgattga caaggatgga tggctacatt ctggagacat agcttactgg 1500
 gacgaagacg aacacttctt catcggtgac cgccctgaagt ctctgattaa gtacaaaggc 1560
 tatcaggtgg ctcccgctga attggaatcc atcttgcctc aacaccccaa catcttcgac 1620
 ..cgggggtcg cagggtttcc cggatgtgac gcccggtaac ttcccgccgc cggtttgtt 1680
 ttggagcacg gaaagacgat gacggaaaaa gagatcgtagg attacgtcgc cagtcagta 1740
 acaaccgcga aaaagttcgcg cggaggagtt gtgtttgtgg acgaagtacc gaaaggctt 1800
 accggaaaac tcgacgcgaag aaaaatcaga gagatcctca taaaggccaa gaagggcggg 1860
 aagatcgccg tggatattcta gaccgggtcg agatccaggc gcggtatcaat aaaagatcat 1920
 tattttcaat agatctgtgtt gttgggtttt tggatgtgcctt gggggggggg gaggccagaa 1980
 tgaggcgcgg ccaagggggaa gggggaggcc agaatgaccc tggggggggg ggaggccaga 2040
 atgaccttgg gggagggggaa ggccagaatg aggccgcggcc ccgatccgtc gacgcccggg 2100
 cttagttgcg tgcctgcagg tttcgcacat tgattattga ctgttattaa atagtaatca 2160
 attacgggggtt cattagttca tagcccatat atggagttcc gcttacata acttacggta 2220
 aatggccgcgc ctggctgacc gcccacac ccccccattt tgacgtcaat aatgacgtat 2280
 gttcccatag taacgccaa atggactttc cattgacgtc aatgggtgga ctatttacgg 2340
 taaactgcgc acctggcagt acatcaatgt tatcatatgc caatgtacgc ccctatttgc 2400
 gtcaatgcgc gtaaatggcc cgcctggcat tatggccagt acatgaccc ttggacttt 2460
 cctacttggc agtacatcta cgtttagtc atcgcttattt ccatgggtcg aggtgagccc 2520
 cacgttctgc ttcaactctcc ccatctcccc cccctccca ccccaattt tttttttttt 2580
 tatttttaa ttattttgtg cagcgatggg ggcggggggg gggggggcgc ggcgcaggcg 2640
 gggcgccggc gggcgagggg cgggggggggg cgaggcggag aggtgcccgc gcaagccaa 2700
 agagcggcgc gctccgaaag tttcccttttta tggcgaggcg gcccggcgg cggccctata 2760
 aaaagcgaag cgcgcggcgg gcccggatcg ctgcgttgc ttcgcggcg tggcccgctcc 2820
 ggcgcgcctc ggcgcggcccg cccggctct gactgaccgc gttactccca caggtgagcg 2880
 ggcgggacgg ccctctctct cggggtgtta attagcgctt gtttaatga cggctcggtt 2940
 cttttctgtg gctgcgtgaa agccttaaag ggctccggga gggccctttt tgcggggggg 3000
 agcggctcgg ggggtgcgtg cgtgtgtgtg tgcgtggggaa ggcgcgcgtg cggcccgcc 3060
 tggccggcgg ctgtgagcgc tgcggggcgc ggcgggggtt ttgtgcgtc cgcgtgtgc 3120
 cgaggggagc gcccgggggg gcccgtcccc gcccgtgcggg ggggtgcga ggggaacaaa 3180
 ggctgcgtgc ggggtgtgtg cgtgggggggg tggcgggggg gtcggcggcgc ggcggcgg 3240
 ctgtaaaccc cccctgcacc cccctccccg agttgtcgatg cacggggccgg cttcgggtgc 3300
 ggggctccgt gcccggcggt gcccgtgcgg ggcgggggtt ggcggcagggt 3360
 ggggggtccgg ggcggggcgg ggcgcctcg gcccggggggag ggcgcggggg agggggcgcgg 3420
 cggcccccggaa gcccggcggcgg ctgtcgaggc gcccggcgc gcaagccattt cttttatgg 3480
 taatcggtcg agagggcgcg gggacttccct ttgtccaaa tctggggag cggaaatctg 3540
 ggaggcgcgg cccacccccc tctagcgggc gcccggcgaag cgggtgcggc cccggcaggaa 3600
 gggaaatgggc gggggaggccc ttgcgtgcgtc gcccgcgcgc cgtcccttc tccatctcca 3660
 gcctcggggc tgccgcaggc ggacggctgc cttcggggggg gacggggcag ggcgggggttc 3720
 ggcttctggc gtgtgaccgg cggctctaga agcggtgggg tgagtactcc ctctcaaaag 3780
 cgggcatttgc ttctgcgtca agattgtcag ttccaaaaaa cgaggaggat ttgatattca 3840
 cctggccgc ggtgatgcct ttgagggtgg cccgcgtccat ctggtcagaa aagacaatct 3900
 ttttgggtgc aagcttgagg tggcgaggc ttgagatctg gccatataact tgagtgacat 3960
 tgacatccac ttgcctttc tctccacagg tgcgttgc cagggcggcc tccggagcga 4020
 tcggccatcc gcctagcatt caaccatggc tagatttagat aaaagtaaag tgattaaacag 4080
 cgcatttagag ctgcttaatg aggtcggaaat cgaagggtta acaacccgta aactcgccca 4140

<210> 15

<211> 7014

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: GAGGS-fuc

<400> 15

tagccgggc tagcttgcatt gcctgcagg tttgcacatt gattatttgc tagttattaa 60
 tagtaatcaa ttacggggtc attagttcat agccatata tggagttccg cgttacataa 120
 cttacggtaa atggccgc tggctgaccg cccaacgacc cccgcccatt gacgtcaata 180
 atgacgtatg ttcccatagt aacgccaata gggacttcc attgacgtca atgggtggac 240
 tatttacggt aaactgccc cttggcagta catcaagtgt atcatatgcc aagtacgccc 300
 cctattgacg tcaatgacgg taaatggccc gcctggcatt atgcccagta catgacctta 360
 tgggacttcc tcaattggca gtacatctac gtattagtca tcgcttattac catgggtcga 420
 ggtgagcccc acgttctgct tcactctccc catctcccc cccctccac ccccaatttt 480
 gtatttattt atttttaat tattttgtgc agcgatgggg gggggggggg gggggggcg 540
 cgccaggccg ggcggggcgg ggcgaggggc ggggggggc gaggcggaga ggtgcggcgg 600
 cagccaatca gacggcgcg ctccgaaagt ttcctttat ggcgaggcgg cggcggcggc 660
 gcccctataa aaagcgaagc ggcggcggg cgggagtcgc tgcgttgcct tcgccccgtg 720
 ccccgctccg cgccgcctcg cgccgcccgc cccggctctg actgaccgcg ttactccac 780
 aggtgagccg gccggacggc cttctctc cggctgtaa ttagcgttg gttaatgac 840
 ggtcgtttc tttctgtgg ctgcgtgaaa gccttaaagg gctccggag ggcctttgt 900
 gccccgggaa gccgctcggg gggtgcgtgc gtgtgtgtgt gcgtgggag cggcgcgtgc 960
 gccccgcgt gccccggcgc tttgagcgct gcccggcgg cgcggggctt tgcgtgcctc 1020
 gctgtgcgc gaggggagcg cggccggggg cggtgcggcc cggtgcgggg gggctgcgag 1080
 gggaaacaaag gctgcgtgc gggtgcgtgc gtgggggggt gacgaggggg tgcggggcgg 1140
 gccgtcgggc ttaaaccccc ccctgcaccc ccctccccga ttgcgtgagc acggcccg 1200
 ttccgggtgc gggctccgtg cggggcgtgg cgggggctc gccgtgccgg gccccgggtg 1260
 gccggcaggta gggggggggg gcccctcg gccggggagg gctcggggga 1320
 gggggcggc gggccggag cggcggcggc tgtcgaggcg cggcggcggc cagccattgc 1380
 cttttatgtt aatcgtgcga gaggcgcag ggacttctt tgcgttgcctt ctggcggagc 1440
 cggaaatctgg gaggcgcgc cgcacccctt ctagcggcgc cggcgaagc ggtgcggcgc 1500
 cggcaggaaag gaaatggcg gggagggcct tcgtgcgtcg cccgcggcc gttcccttct 1560
 ccatctccag cctcggggct gccgcagggg gacggctgca ttggggggg acggggcagg 1620
 gccccggcgt gcttctggcg tttgacccggc ggctctagaa gcgttgggt gactactccc 1680
 tctcaaaaagc gggcatgact tctgcgttaa gattgtcgt ttccaaaaac gaggaggatt 1740
 tgcgttgcgt gttatgcctt tgagggtggc cgcgtccatc tgcgtcgttt 1800
 agacaatctt ttgttgcgtc agcttgcagg tttggcaggct tgagatctgg ccatacactt 1860
 gagtgcacatt gacatccact ttgccttctt cttccacagg tttttttttt gttccactccc agggccgcct 1920
 ccggagcgat cgcgggtccg cctaggcaat tttttttttt cggatctg cgtatctaagt 1980
 aagcttgcgtc ttccgggtact tttttttttt ccaccatggc agacgcctaa aacataaaga 2040
 aaggccggc gccattctat cccgttgc gtttgcgttgc ttggagagca ctgcataagg 2100
 ctatgaagag atacgcctcg gtttgcgttgc caattgcgtt tacagatgc catatcgagg 2160
 tggacatcac ttacgcgttag tacttcgaaa tttttttttt gtttgcgttgc gtttgcgttgc 2220
 gatatgggtt gtttgcgttgc gtttgcgttgc tttttttttt tttttttttt 2280
 ttatgcgttgc gtttgcgttgc tttttttttt gtttgcgttgc tttttttttt 2340
 ataatgaacg tttttttttt gtttgcgttgc tttttttttt gtttgcgttgc tttttttttt 2400
 cccaaaaaggg gtttgcgttgc tttttttttt gtttgcgttgc tttttttttt 2460
 ttattatcat gtttgcgttgc tttttttttt gtttgcgttgc tttttttttt 2520
 catctcatct acctccggc tttttttttt gtttgcgttgc tttttttttt 2580
 acaagacaat tttttttttt gtttgcgttgc tttttttttt 2640
 tttttttttt tttttttttt 2700
 ctctgcctca tagaactgcc tttttttttt gtttgcgttgc tttttttttt 2760
 atcaaatcat tccggataact tttttttttt gtttgcgttgc tttttttttt 2820
 tttttttttt tttttttttt 2880
 aagaagagct tttttttttt gtttgcgttgc tttttttttt 2940
 caaccctatt tttttttttt gtttgcgttgc tttttttttt 3000
 tacacgaaat tttttttttt gtttgcgttgc tttttttttt 3060
 agaggttcca tttttttttt gtttgcgttgc tttttttttt 3120
 ttctgattac acccgagggg gtttgcgttgc tttttttttt 3180
 ttgaagcgaa gtttgcgttgc tttttttttt gtttgcgttgc tttttttttt 3240
 aactgtgtgt gtttgcgttgc tttttttttt 3300
 acgccttgat tttttttttt gtttgcgttgc tttttttttt 3360
 acgaacactt tttttttttt gtttgcgttgc tttttttttt 3420
 tttttttttt tttttttttt 3480
 tttttttttt tttttttttt 3540
 acggaaagac gtttgcgttgc tttttttttt 3600
 cggaaaaagggtt tttttttttt 3660
 aactcgacgc aagaaaaatc agagagatcc tttttttttt 3720
 ccgtgttattt tttttttttt 3780
 atgatgtttttt tttttttttt 3780

gtgatgctat tgctttattt gtaaccatTAAGCTGCAA taaacaagtt aacaacaaca 3840
 attgcattca ttttatgttt caggttcagg gggaggtgtg ggaggtttt taaagcaagt 3900
 aaaacctcta caaatgtggt aaaatcgata aggatctgaa cgatggagcg gagaatggc 3960
 ggaactggc ggagttaggg gcgggatggg cggagttagg ggcgggacta tgggtgctga 4020
 ctaattgaga tgcattgcTTT gcatacttct gcctgctgg gaggctggg actttccaca 4080
 cctgggtgct gactaattga gatgcattgt ttgcataactt ctgcctgctg gggagcctgg 4140
 gactttcca caccctaact gacacacatt ccacagcgga tccgtcgacc gatcccttg 4200
 agagcattca acccagtcaG tccctccgg tgggcccggg gcatgactat cgtcggcga 4260
 cttatgactg tcttctttat catgcaactc gtaggacagg tgccggcagc gctctccgc 4320
 ttcctcgctc actgactcgc tgccgtcggt cgttccggctg cggcgagcgg tattcagctca 4380
 ctcaaaggcg gtaatacggt tatccacaga atcaggggat aacgcaggaa agaacatgtg 4440
 agcaaaaaggc cagcaaaaagg ccaggaaccg taaaaggcc gcgttgcgg cgttttcca 4500
 taggctccgc cccctgcacg agcatcacaa aaatcgacgc tcaagtcaG ggtggcgaaa 4560
 cccgacagga ctataaagat accaggcggt tccccctgga agctccctcg tgcgtctcc 4620
 tggccgacc ctgcgctta ccggataacct gtcgcctt ctcccttcgg gaagcgtggc 4680
 gtttctcat agctcacgct gtaggtatct cagttccgg taggtcgttc gctccaagct 4740
 gggctgtgtg cacgaacccc cgttcagcc cgaccgctgc gccttattccg gtaactatcg 4800
 tctttagtcc aaccggtaa gacacgactt atgcacttgc gcaagcggca ctggtaacag 4860
 gattagcaga gcgaggatgt taggcgtgc tacagagtcc ttgaagtggt ggcctaacta 4920
 cggctacact agaagaacag tatttggat ctgcgtctg ctgaaggccag ttaccttcgg 4980
 aaaaagagtt ggtagcttt gatccggcaa acaaaccacc gctggtagcg gtggttttt 5040
 tggtttgcag cagcagatta cgcgcagaaa aaaaaggatct caagaaagatc ttttgatctt 5100
 ttctacgggg tctgacgctc agtggAACGA aaactcacgt taaggattt tggcatgag 5160
 attatcaaaa aggatctca cctagatct tttaaattaa aaatgaagtt ttaaatcaat 5220
 cttaaagtata tatagtaaa ctgggtctga cagttaccaa tgcttaatca gtgaggcacc 5280
 tatctcagcg atctgtctat ttgcattcatc catagttgcc tgactccccg tcgtgttagat 5340
 aactacgata cggagggtt taccatctgg ccccaagtgc gcaatgatac cgcgagacc 5400
 acgctcacccg gtcgcaggatt tatcagcaat aaaccagcca gcccggagg ccgagcgcag 5460
 aagtggctct gcaactttat ccgcctccat ccagtctatt aatttgcgc gggaaagctag 5520
 agtaagttagt tcgcgcgtt atagttgcg caacgttgc gccattgtca caggcatcgt 5580
 ggtgtcacgc tcgtcggtt gtagggcttc attcagctcc ggttcccaac gatcaaggcg 5640
 agttacatga tccccatgt tggcaaaaa agcggttagc tccttcggc cttcgatcgt 5700
 tgcagaagt aagtggccg cagtttattc actcatgtt atggcagcac tgcataattc 5760
 tcttactgtc atggcatccg taagatgtt ttctgtgact ggtgagttact caaccaagtc 5820
 attctgagaa tagtgtatgc ggccggcgg tagtgcatttcgc ccggcgtaa tacggataa 5880
 taccgcgcga catagcagaa cttaaaagt gctcatcatt gaaaaacgtt cttcgccggc 5940
 aaaaactctca aggatcttac cgctgttgcg atccagttcg atgttaaccca ctcgtgcacc 6000
 caactgatct tcagcatctt ttacttcac cagcgttctc gggtgagcaa aaacaggaag 6060
 gcaaaatgcc gcaaaaaagg gaataaggc gacacggaa tggtaatac tcatactctt 6120
 ccttttcaa tattattgaa gcatttatca gggttattgt ctcatgagcg gatacatatt 6180
 tgaatgtatt tagaaaaata aacaaatagg ggttccgcgc acattcccc gaaaagtgc 6240
 acctgacgcg ccctgttagcg ggcattaaag cgcggccgggt gtgggttgc cgcgcagcg 6300
 gaccgcgtaca ctgcgcgcg ccctaggcc cgcgcgttgc gctttcttc cttcccttc 6360
 cggccatccgc gccggcttcc cccgtcaagc tctaaatcg gggctccctt tagggttccg 6420
 attttagtgc ttacggcacc tgcacccaa aaaaacttgat tagggtgatg gttcacgtag 6480
 tggccatcg ccctgtataga cggttttcg cccttgcacg ttggagtcca cgttctttaa 6540
 tagtggactc ttgttccaaa ctggaaacaac actcaaccct atctcggtct attctttga 6600
 tttataaggg attttgcga ttgcgccta ttgtttaaaa aatgagctga ttaacaAAA 6660
 atttaacgcg aattttaaaca aaatattaaac gettacaatt tgccattcgc cattcaggct 6720
 ggcattaaatgt tggttgcg ggccttgc ctattacgcc agcccaagct 6780
 accatgataa gtaagtaata ttaaggatcg ggaggactt ggagccggccg caataaaaata 6840
 tctttatTTT cattacatct gtgtgttgc ttttgcgtt aatcgtatgt actaacatac 6900
 gctctccatc aaaacaaaac gaaacaaaac aaactagcaa aataggctgt ccccaagtgc 6960
 agtgcaggcg ccagaacatt tctctatcgat taggtaccga gctctacgc gtgc 7014

<210> 16
 <211> 5430
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: GAGGS-tetR

<400> 16
 ccgggctagc ttgcatacgct gcaggtttc gacattgatt attgactagt tattaatagt 60
 aatcaattac ggggtcatta gttcatagcc catatatgga gttccgcgtt acataactta 120
 cggtaaatgg cccgcctggc tgaccgccta acgacccccc cccattgacg tcaataatga 180
 cgtatgttcc catagtaacg ccaatagggc ctttccattg acgtcaatgg gtggactatt 240
 tacggtaaac tgcccacttg gcagtagatc aagtgtatca tatgccaagt acgcccccta 300
 ttgacgtcaa tgacggtaaa tggccgcct ggcattatgc ccagtagatc accttatggg 360
 actttcctac ttggcagttac atctacgtat tagtcatcgc tattaccatg ggtcgagggtg 420
 agccccacgt tctgcttcac tctccccatc tccccccct ccccacccccc aattttgtat 480
 ttatttattt tttaattttt ttgtcagcg atggggcg 600
 aggccggccg gggccggccg agggccggg cggggcgagg cggagaggtg cggccggc 660
 caatcagagc ggcgcgtcc gaaagttcc ttttatggcg aggccggccg gggccggcc 720
 etataaaaag cgaagcgcgc ggcggccgg agtcgctgcg ttgccttcgc cccgtgcggcc 780
 gtcgcgcgc gcctcgccg gcccgcggc gctctgactg accgcgttac tcccacaggt 840
 gagccggccg gacggccctt ctccctccggg ctgttaattag cgcttggttt aatgacggct 900
 cgttctttt ctgtggctgc gtgaaaggct taaagggttc cgggaggggcc ctttgtgcgg 960
 gggggagccg ctcgggggggt gcgtgcgtgt gtgtgtgcgt ggggagccg gctgcggcc 1020
 cgcgctgcgc ggcggctgtg agcgcgtgcg ggcggccg gggcttgcg cgcctccgcgt 1080
 gtgcgcgagg ggagcgcgcg cggggggcgt gcccgcggt ggggggggc tgcgagggg 1140
 acaaaggctg cgtgcgggggt gtgtgcgtgg gggggtgagc agggggtgtg ggcgcggccg 1200
 tggggctgttacccccccttgcacccccccttcccgagtttgcgatcaccggccggcttcg 1260
 ggtgcggggc tccgtcgccg gcgtggccg gggctcgccg tgccggccg ggggtggccg 1320
 caggtggggg tggccggccg ggccggccg cctccggccg gggagggctc gggggagggg 1380
 cgcggccgc cccggagcgc ggcggctgtc gaggccgcg gagccgcagc cattgcctt 1440
 tatggtaatc gtgcgagagg ggcgcaggac ttcccttgc ccaaacttgc cggagccgaa 1500
 atctgggagg cgcgcgcgc cccctctag cggccgcggg cgaagccgtg cggccgcggc 1560
 aggaaggaaa tggccggggc gggcttcgt gcgtccgcg gcccgcgtcc ccttctccat 1620
 ctccagcctc gggctgcgc cagggggacg gtcgcctcg ggggggacgg ggcaggccg 1680
 ggttcggctt ctggcgtgtg accggccgct ctagaagcgt tggggtgagt actccctctc 1740
 aaaagccggc atgacttctg cgctaagatt gtcaaggatttcc aaaaacgagg aggatttgat 1800
 attcacctgg cccgcgtga tgcctttgag ggtggccgcg tccatctggt cagaaaagac 1860
 aatctttttt ttgtcaagct tgaggtgtgg caggcttgcg atctggccat acacttgagt 1920
 gacattgaca tccactttgc ctttctctcc acaggtgtcc actcccaggg cggcctccgg 1980
 agcgatcgcc gatccgccta gcatcaacc atggctagat tagataaaaag taaaagtatt 2040
 aacagcgcat tagagctgt taatgaggc ggaatcgaag gtttacaaac cctgtaaactc 2100
 gcccagaagc taggtgtaga gcagccata ttgtattggc atgtaaaaaa taagccggct 2160
 ttgctcgacg ccttagccat tgagatgtt gataggcacc atactcactt ttgccttta 2220
 gaagggggaaa gctggcaaga ttttttacgt aataacgcta aaagttttttag atgtgttta 2280
 ctaagtcatc gcgatggagc aaaagtacat ttaggtacac ggcctacaga aaaacagtat 2340
 gaaactctcg aaaatcaatt agcctttta tgccaaacaag gtttttactt agagaatgca 2400
 ttatatgcac tcagcgtgt gggccattt acttttaggtt gctgttgggaa agatcaagag 2460
 catcaagtgc ctaaagaaga aaggaaaca cctactactg atagatgc gccatttta 2520
 cgacaagcta tcgaattatt tgatcacaa ggtgcagacg cagccttctt attccggcctt 2580
 gaattgtatca tatgcggatt agaaaaacaa cttaaatgtg aaagttggc gtaaccgggt 2640
 cgagatccag ggcggatca ataaaagatc atttttca atagatctgt gtgttggtt 2700
 tttgtgtgcc ttggggggagg gggaggccag aatgaggccg gccaagggg gggggggagg 2760
 ccagaatgac cttggggggag gggggggccg gaatgacctt ggggggggg gggccggaa 2820
 tgaggccgcg ccccggttac cgagctcgaa ttcaactggcc gtcgtttac aacgtcgta 2880
 ctgggaaaac cctggcgatc cccaaacttac ttgccttgcg gcacatcccc cttcgccag 2940
 ctggcgtaat agcgaagagg cccgcaccga tgccttc caacagttgc gcagcctgaa 3000
 tggcgaatgg cgcctgatgc ggtattttct ctttacgcgt ctgtcggtt tttcacacccg 3060
 catatgtgc actctcgatca caatctgc tgcgtccgcg tagttaagcc agccccgaca 3120
 cccgccaaca cccgctgacg cggccctgacg ggcttgcgtg ctcccgcat cccgttacag 3180
 acaagctgtg accgtctccg ggagctgcgt gtgtcagagg ttttacccgt catcaccgaa 3240
 acgcgcgaga cggaaaggcc tcgtgatcgc ctttacccgt tagttaatgc tcatgataat 3300
 aatggttct tagacgtcgt gttggacttt tcggggaaat gtgcgcggaa ccccttattt 3360
 ttatattttc taaatacatt caaatatgtt tccgctcatg agacaataac cctgataat 3420
 gcttcaataa tattgaaaaa ggaagaggtat gaggatttca cattttccgtg tcggccctt 3480
 tccctttttt gccgcatttt gccttcctgt ttttgcctac ccagaaacgc tggtaaagt 3540
 aaaagatgct gaagatcgt tgggtgcacg agtgggttac atcgaactgg atctcaacag 3600
 cggtaaatc cttggaggtt ttgcggccg agaactttt ccaatgtga gcactttttaa 3660
 agttctgcta tggccgcgg tattatcccg tattgacgcg gggcaagagc aactcggtcg

ccgcatacac tatttcaga atgacttggc tgagttactca ccagtcacag aaaagcatct 3720
 tacggatggc atgacagtaa gagaattatg cagtgcgtcc ataaccatga gtgataacac 3780
 tgcggccaaac ttacttctga caacatcgagg aggaccgaag gagctaaccg ctttttgca 3840
 caacatgggg gatcatgtaa ctcgccttga tcgttggaa ccggagctga atgaagccat 3900
 accaaacgac gagcgtgaca ccacgatgcc ttagtcaatg gcaacaacgt tgcgcaaaact 3960
 attaactggc gaactactt ctctagcttcc cgcccaacaa ttaatagact ggatggaggc 4020
 gataaaaggc gcaggaccac ttctgcgtcc gcccctccg gctggctgtt ttattgtctga 4080
 taaatctgaa gccggtagc gtgggtctcg cggatcattt gcaagcactgg ggcagatgg 4140
 taagcccttc cgtatcgtag ttatctacac gacggggagt caggcaacta tggatgaacg 4200
 aaatagacag atcgctgaga taggtgcctc actgattaag cattggtaac tgcagacca 4260
 agtttactca tatatacttt agattgattt aaaacttcat ttttaattt aaaggatcta 4320
 ggtgaagatc tttttgcata atctcatgac caaaatccct taacgtgagt tttcggttcca 4380
 ctgagcgtca gaccccttag aaaagatcaa aggttctt tgagatcctt ttttctgcg 4440
 cgtaatctgc tgcttgcata caaaaaacc accgctacca gccgggtt gttggccgga 4500
 tcaagagctc ccaactctt ttccgaaggt aactggcttcc agcagagcgc agataccaaa 4560
 tactgtccctt ctatgttagc cgtatgttcc accaccatcc aagaactctg tagcaccgccc 4620
 tacataccctc gctctgctaa tcctgttacc agtggctgtt gccagtgccg ataaatgcgtg 4680
 tcttaccggg ttggactcaa gacgataatg accggataag ggcagcggc cgggctgaac 4740
 ggggggttcg tgcacacagc ccagcttgg gcaacgacc tacaccgaac tggatatact 4800
 acagcgtgag ctatgagaaa gcccacgt tccgaaggg agaaaaggcgg acaggtatcc 4860
 ggttaagccgc agggctggaa caggagagcg caggaggag cttccagggg gaaacgcctg 4920
 gtatctttat agtccctgtcg ggtttcgcca cctctgactt gggatcgat tttgtatg 4980
 ctctgtcaggg gggcgagcc tatggaaaaa cgcacgcaac gggcccttt tacgggttcc 5040
 ggccttttgc tggccttttgc ctcacatgtt cttcctgcg ttatccctg attctgttgg 5100
 taaccgtatt accgcctttg agtggatcg taccgctcgc cgcagccgaa cgaccgagcg 5160
 cagcgactca gtgagcggg aagcggaaaga gcccataa cgcacccgc ctctcccccgc 5220
 gcttggccg attattaaat gcaatggca cgcacgggtt cccgacttgg aagcggcgg 5280
 tgagcgcaac gcaatattatg tggatgtt cactcattag gcaacccagg ctttacactt 5340
 tatgtttccg gctcgatgt tggatggaaat tggatggca taacaatttc acacaggaaa 5400
 cagctatgac catgattacg ccaagctacg 5430

<210> 17
 <211> 7332
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: CMV-LacZ

<400> 17
 aaacagtcgg atgtacggc cagatatacg cgttgcattt gattatttgc tagtttattaa 60
 tagtaatcaa ttacgggtc attagttcat agccatata tggaggccgtt cgttacataaa 120
 cttacggtaa atggcccgcc tggctgaccg cccaaacgacc cccgcccatt gacgtcaata 180
 atgacgtatg ttcccatatg aacgcaata gggactttcc attgacgtca atgggtggac 240
 tatttacggtaa aactgtccca cttggcagta catcaatgtt atcatatgcc aagtacgccc 300
 cctatttgcg tcaatgtccca gcttggcattt atgcccgtt catgacctt 360
 tgggactttc ctacttggca gtacatctac gtattatgtca tcgctattac catggatgt 420
 cggtttggc agtacatcaa tggcgttgg tagcgttgg actcacgggg atttccaatg 480
 ctccacccca ttgacgtca tggaggtttt tttggcacc aaaatcaacg ggactttcca 540
 aatgtcgta acaactccgc cccatttgcg caaatgggg gtagggcgtt acgggtggg 600
 gtctatataa gcaagacttctt ctggcttactt agagaaccca ctgcttactt gcttacgtt 660
 attaatacgat ctactatag ggagacccaa gctgacttca gacttaattt agcgttgggg 720
 tggatgttcc ctctcaaaaatggccatgac ttctgcgttca agattgttcaatggatgtt 780
 cgaggaggat ttgatattca cctggccgc ggtgtatgcctt tggagggtgg cccgttccat 840
 ctggatggaa aagacaatctt ttttggatgttca aagatgttggg tggatggcaggc ttgagatctg 900
 gcccataact tggatgttcaatggccatgac ttctgcgttcc tctccacagg tggatggatgtt 960
 cagggccggcc gcaatcccg gggatcgaaa gggctgttca aagcaaaaaaa gaagtcacca 1020
 tggatgttccat tttgacatccca aagaacgttca ttttggatgttca ctttggatgttca 1080
 tggatggatgttcaatggccatgac aagatgttcaatggatgttca ttttggatgttca 1140
 aaaaacccctgg cgttacccaa ctttacgttcaatggccatgac ttttggatgttca 1200
 gtaatagcgat agaggccgc accgatgttcaatggccatgac gttggcaggc ctgatggcgg 1260
 aatggccatgac tggatgttcaatggccatgac aagatgttcaatggatgttca 1320

aatgtcatga taataatggc ttcttagacg tcaggtggca cttttcgaaa aaatgtgcgc 5160
 ggaaccccta tttgtttatt tttctaaata cattcaaata tgtatccgt catgagacaa 5220
 taaccctgat aaatgctca ataataattga aaaaggaaga gtatgagat tcaacatttc 5280
 cgtgtcgccc ttatccctt tttgcggca tttgccttc ctgttttgc tcacccagaa 5340
 acgctggta aagtaaaaaga tgctgaagat cagttgggt caccgatggg ttacatcgaa 5400
 ctggatctca acagcgtaa gatccttgc agtggccgc ccgaagaacg tttccaatg 5460
 atgagcatt ttaaagtctc gctatgtggc gcggtattat cccgtattga cgccgggcaa 5520
 gagcaactcg gtcggccat acactattct cagaatgact tgggtgagta ctcaccagtc 5580
 acagaaaagc atcttacgga tggcatgaca gtaagagaat tatgcagtgc tggcataacc 5640
 atgagtgata acactgcgc caacttactt ctgacaacga tcggaggacc gaaggagcta 5700
 accgctttt tgcacaacat gggggatcat gtaactcgcc ttgatcggt ggaaccggag 5760
 ctgaatgaag ccataccaaa cgacgagcgt gacaccacga tgcctgttagc aatggcaaca 5820
 acgttgcgc aactattaac tggcgaacta cttaactctgc gtcggccct tccggctggc 5940
 gactggatgg aggccgatata agttgcagga ccacttctgc gtcggccct tccggctggc 6000
 tggtttattt ctgataaattc tggagccgtt gaggctgggt ctgcgttat cattgcagca 6060
 ctggggccag atggtaagcc ctcccgtatc gtagttatct acacgacggg gagtcaaggca 6120
 actatggatg aacgaaatag acagatcgtt gagataggtg cctcaactgat taagcattgg 6180
 taactgtcag accaagttt ctcatatata cttagatgg atttaaaact tcattttaa 6240
 tttaaaagga tcttaggtgaa gatcctttt gataatctca tgacaaaat cccttaacgt 6300
 gagtttcgt tccactgagc gtcagacccc gtagaaaaaga tcaaaggatc ttcttgagat 6360
 ccttttttc tgcgcgtatc ctgctgttg caaacaaaaa aaccaccgtt accagcgggt 6420
 gtttggttgc cggatcaaga gctaceaaact cttttccggatggtaactggg cttcagcaga 6480
 ggcgcagatac caaaactgtt cttcttagt tagccgttagt taggccacca ctcaagaac 6540
 tctgttagcac cgccctacata cctcgctctg ctaatcctgt taccagtggc tgctgccagt 6600
 ggcgcataagt cgtgtcttac cgggttggac tcaagacgtt agttaccggta taaggcgcag 6660
 cggtcgggtt gAACGGGGGGG ttctgtgcaca cagcccagct tggagcgaac gacctacacc 6720
 gaactggatg acctacagcg tgagctatga gaaagcggca cgcttccggatgggagaaag 6780
 gcccggacggt atccggtaag cggcagggtc ggaacaggag agcgcacggag ggagcttcca 6840
 gggggaaacg cctggatctt ttatagtcgt gtcgggtttc gccacctctg acttgagcgt 6900
 cgattttgtt gatgctcgcc agggggccgg agcctatggaa aaaacgcccggaaacgcggcc 6960
 tttttacggt tcctggcctt ttgtggcct ttgtgcaca ttttgcata tgcttcc tgcgttatcc 7020
 cctgattctg tggataaccg tattaccgc tttgagtgag ctgataaccgc tcggccgac 7080
 cgaacgaccg agcgcagcga gtcagtgagc gaggaagcgg aagagcgcac 7140
 cccgcctctcc cccgcgcgtt gccgattcat taatgcagct ggcacgcac 7200
 tggaaagcgg gcaatgtggc caacgcattt aatgtgagtt agctcactca tttaggcaccc 7260
 caggctttac actttatgtt tccggctcgat atgttggtt gattgtgagcggataacaa 7320
 tttcacacag gaaacagcta tgaccatgtat tacgccaacg tagccgggc tagttgcatt 7332
 gcctgcagggtt

<210> 18
 <211> 5878
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: CAGGS-cre

<400> 18
 ttcgacattt attattgact agtttataat agtaatcaat tacggggtca ttatgttccata 60
 gcccataat gtagttccgc gttacataac ttacgttaaa tggccggcct ggctgaccgc 120
 ccaacgaccc ccccccattt acgtcaataa tgacgtatgt tcccatagta acgccaatag 180
 ggactttcca ttgacgtcaa tgggtggact atttacggta aactgcccac ttggcagtac 240
 atcaagtgtt tcatatgcca agtacgcccc ctattgacgt caatgacggtaatggcccg 300
 cctggcatta tggccaggatc atgacattt gggacttttcc tacttggcag tacatctac 360
 tattatgtcat cgcttattacc atgggtcgag gtgagccca ctgttgcctt cactctcccc 420
 atctcccccc cctcccccacc cccaaattttt tatttattta tttttttaattt attttgcata 480
 gcgatgggggg cgggggggggg gggggcgcgc gccaggcggg gggggcggg gcgagggggc 540
 gggcggggcg aggccggagag gtgcggccgc agccaaatcag agcggccgc tccgaaagt 600
 tcctttatg gcgaggccgc ggcggccgc gccctataaaa aagcgaagcg cgcggccggc 660
 gggagtcgtt gcttgcctt cccgcgttgc cccgcgttgc gccgcctcgc gccggccccc 720
 cccgcgttgc cttgcaccgt tactccacata ggtgagcggg cggacggcc cttctccccc 780
 gggctgtat tagcgttgc ttatgtgacg gtcgttttctt ttttgcgttgc tgcgtgaaag 840

ccttaaaggc ctccgggagg gccctttgtg cgggggggag cggctcgaaa ggtgcgtgcg 900
tgtgtgtgtg cgtggggagc gcccgtgcg gcccgcgtg cccggcggt gtgagcgctg 960
cgggcgcggc gcggggctt gtgcgtccg cgtgtgcgcg agggagacgc gggccggggc 1020
ggtccccgc ggtgcggggg ggctgcagg gaaacaaagg ctgcgtgcgg ggtgtgtgcg 1080
tgggggggtg agcagggggt gtgggcgcgg cggcgggtc gtaaaaaaaa cctgcacccc 1140
cctccccag ttgcgtgacca cggccgggtc tgggtgcgg ggctccgtc gggcggtggc 1200
gcggggctcg ccgtgcggg cgggggggtgg cggcagggtgg gggtgcggg cggggcgggg 1260
ccgcctcggg cgggggaggg ctgcggggag gggcgcggc gccccggagc gccggcggtc 1320
gtcgaggcgc ggcgagccgc agccattgcc ttttatggta atcggtgcag agggcgcggc 1380
gacttcctt gtcccaaatac tggcgagcc gaaatctggg aggcgcggc gcacccccc 1440
tagcggcgc gggcgaagcg gtgcggcgc ggcaggaagg aaatgggggg ggggggcctt 1500
cgtgcgtcgc cgcgcgcgg tcccottctc catctccagc ctgggggtcg cgcaggggg 1560
acggctgcct tggggggggg cggggcaggg cgggggttcgg ctcttggcg tgcaccggc 1620
gctctagtaa ggttggggg ggtactccc tctcaaaagc gggcatgact tctgcgtaa 1680
gattgtcagt ttccaaaaac gaggaggatt tgatattcac ctggcccgcg gtgatgcctt 1740
tgagggtggc cgcgtccatc tggtcagaaa agacaatctt tttgttgcg agcttgggt 1800
gtggcaggct ttagatctgg ccatacactt gagtgcatt gacatccact ttgccttct 1860
ctccacaggt gtccactccc agggcggcct cgaccatgcc caagaagaag aggaagggt 1920
ccaatttact gaccgtacac caaaatttcg ctgcattacc ggtcgatgca acgagtatg 1980
agttcgcaa gaacctgatc gacatgtca gggatgcgc ggcgtttct gacatacc 2040
ggaaaatgtc tctgtccgtt tgccgtcgt gggcggcatg gtcaagttt aataaccgga 2100
aatgggttcc cggcagaacct gaagatgttc gcgattatct tctatatctt caggcgcgc 2160
gtctggcagt aaaaactatc cagcaacatt tggccagct aaacatgctt catgtcggt 2220
ccgggtgcg acgaccaagt gacagcaatg ctgttcaact gttatgcgg cggatccgaa 2280
aagaaaaacgt tgatgcccgtt gaaatgcgaa aacaggctct agcgttcgaa cgcactgatt 2340
tcgaccaggc tgcgttcaact atggaaaata ggcgtcgctt ccaggatata cgtaatctgg 2400
catttctggg gattgtttat aacaccctgt tacgtatagc cgaatttgcc aggtcagg 2460
ttaaagatat ctcacgtact gacgggtggc gaaatgttaat ccatattggc agaacgaaa 2520
cgctgttag caccgcagg gtagagaagg cacttagctt ggggttaact aaactgtcg 2580
agcgatggat ttccgtctt ggttagctg atgatccgaa taactacctg ttttgcggg 2640
tcagaaaaaa tgggtgttgcg ggcgcattcg ccaccagcc gctatcaact cgcgcctgg 2700
aagggatttt tgaagcaact catcgattga tttacggcgc taaggatgac tctggtcaga 2760
gatacctggc ctggctctga cacagtgcgg gtagcgagc cacttagctt gggccgcg 2820
ctggagttt aataccggag atcatgcaag ctgggtgtc gaccaatgta aatattgtca 2880
tgaactatat cctgtacactg gatagtgaaa cagggcaat ggtgcgcctg ctggaaatg 2940
gcgattagcc attaacgcgtt aaatgattgc agatccacta gttctagggc cgcgtcgacc 3000
tcgagatcca ggcgcggatc aataaaagat cattatttc aatagatctg tgggttgggt 3060
tttgggtgc cttggggggg ggggaggcga gaatgaggcg cggccaagggg ggagggggag 3120
gccagaatga cttggggggg gggggaggcc agaatgaccc tgggggagggg ggaggccaga 3180
atgaggcgcg ccccccggta ccgagctcg attcaactggc cggttgcgttta caacgtcg 3240
actggaaaaa ccctggcggtt acccaactt atgcgccttc agcacatccc ccttcgcaca 3300
gctggcgtaa tagcgaagag gccccgcaccg atgcgccttc ccaacagttt cgcagcctga 3360
atggcgaatg ggcgtcgatc cggatatttc tccttacgca tctgtgcggg atttcacacc 3420
gcataatggc cactctcgtt acaatctgtt ctgtgcgttgc atagttaaat cagcccgac 3480
acccgcacac acccgctgac ggcgcctgc gggctgtct gctcccgca tccgcttaca 3540
gacaagctgt gaccgtctcc gggagctgca tgggtcagag gtttcacccg tcatcaccga 3600
aacgcgcgag acgaaaggc ctcgtgatac gccttacgca tctgtgcggg atagttaaat 3660
taatggttt ttagacgtca ggtggcactt tggggggaaa tggcgcggaa accccatttt 3720
gtttatttt ctaaatacat tcaaatatgt atccgctcat gagacaataa ccctgataaa 3780
tgcttcaata atattgaaaa aggaagagta tgagttca acatttccgt tgcgcctta 3840
ttccctttt tgcggcattt tgccttcgtt ttttgcgtca cccagaaacg ctgggtaaag 3900
taaaagatgc tgaagatcag ttgggtgcac gagggttca catcgaaactg gatctcaaca 3960
gcggtaagat ccttgagat ttgcgggggg aagaacgtt tccaatgtat agcactttt 4020
aagtctgtt atgtggcgcg gtattatccc gtattgacgc cggcgaagag caactcggc 4080
gccgcataca ctattctcg aatgacttgg ttgagttactt accagtacca gaaaagcatac 4140
ttacggatgg catgacagta agagaattat gcagtgcgtc cataaccatg agtgataaca 4200
ctgcggccaa cttaacttctg acaacgatcg gaggacggaa ggagctaaccc gctttttgc 4260
acaacatggg ggtatcatgt actcgcccttgc atcggtgggaa accggagctg aatgaagcca 4320
taccaaacga cgagcgtgac accacgatgc ctgtaccaat ggaacaacaacg ttgcgcac 4380
tattaactgg cgaactactt actctagtt cccggcaaca attaatagac tggatggagg 4440
cggataaaatg tgcaggacca ctctgcgtc cggcccttcc ggctggctgg tttattgctg 4500
ataaaatctgg agccgggtgag cgtgggtctc ggggtatcat tgcagcactg gggccagatg 4560
gtaagccctc ccgtatcgta gttatctaca cgacggggag tcaggcaact atggatgaac 4620

gaaatagaca gatcgctgag ataggtgcct cactgattaa gcattggtaa ctgtcagacc 4680
 aagtttactc atatatactt tagattgatt taaaacttca ttttaatatt aaaaggatct 4740
 aggtgaagat ccttttgat aatctcatga cccaaatccc ttaacgtgag tttcgttcc 4800
 actgagcgtc agaccccgta gaaaagatca aaggatctc ttgagatctt tttttctgc 4860
 gcgtaatctg ctgcttgc当地 aaaaaaaaaac caccgctacc agcgggtggt tggccgg 4920
 atcaagactt accaacttctt tttccgaagg taactggctt cagcagagcg cagataccaa 4980
 atactgtctt tcttagtgtag ccgtagttttag gccaccactt caagaactctt gtgcaccgc 5040
 ctacatactt cgctctgta atcctgttac cagtggtgc tgccagtgcc gataagtcgt 5100
 gtcttacccg gttgactca agacgatagt taccggataa ggccgcagccg tcgggctgaa 5160
 cgggggggttc gtgcacacag cccagcttgg agcgaacgc ctacaccgaa ctgagatacc 5220
 tacagcgtga gctatgagaa agcgccacgc ttcccgaagg gagaaggcg gacaggtato 5280
 cggttaagccg cagggtcgaa acaggagagc gcacgaggga gcttccaggg gaaacgcct 5340
 ggttatctta tagtctgtc gggtttcgac acctctgact tgagcgtcga ttttgtat 5400
 gctcgtcagg gggccggagc ctatggaaaa acggccagcaa cgcggccctt ttacggttcc 5460
 tggccttttgc tggccttttgc tctcacatgt tcttcctgc gttatcccctt gattctgtgg 5520
 ataaccgtat taccgcctt gagttagctt ataccgctcg ccgcagccga acgaccgagc 5580
 gcagcggatc agtgagcggag gaagcggaaag agcggccaaat acgcaaaccg cctctccccg 5640
 cgcgttggcc gattcattaa tgcagcttgg acgacaggtt tcccgactgg aaagcgggca 5700
 gtgagcgc当地 cgcaattaaat gtgagtttgc tcaactcattt ggcacccag gcttacact 5760
 ttatgcttcc ggctcgatg ttgtgtgaa ttgtgagcgg ataacaattt cacacaggaa 5820
 acagctatga ccatgattac gccaagctt cccggcttag cttgcatttcc tgaggtt 5878

<210> 19
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the CDH-1 gene

<400> 19
 tgagaagtct cccagtcgt tcaagagact gactgggaga cttctca

47

<210> 20
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the p53 gene

<400> 20
 gactccagtg gtaatctact tcaagagagt agattaccac tggagtc

47

<210> 21
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the CDC20 gene

<400> 21
 cggcaggact ccggggccgat tcaagagatc ggccggaggt cctgccg

47

<210> 22

<211> 47
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the CYLD gene

 <400> 22 47
 cctcatgcag ttctctttgt tcaagagaca aagagaactg catgagg

<210> 23
 <211> 50
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the RAS-GAP gene

<400> 23 50
 aagatgaagc cactccctat ttcaagagaa aatagggagt ggcttcatct

<210> 24
 <211> 41
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the tubulin gene

<400> 24 41
 gacagagcca agtggactca cagagtccac ttggctctgt c

<210> 25
 <211> 42
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the lamin gene

<400> 25 42
 ctggacttcc agaagaacat tcgtgttctt ctggaagtcc ag

<210> 26
 <211> 47
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 12

<400> 26 47
 gagattggtc cagaacagt tcaagagaac tgttctggac caatctc

<210> 27
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 12

<400> 27
ccccctccga tcatggtagt tcaagagact accatgatcg gaagggc 47

<210> 28
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 12

<400> 28
tctttagaat tcttaagtat tcaagagata cttaagaatt ctaaaga 47

<210> 29
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene of the
ubiquitin carboxyl-terminal hydrolase

<400> 29
cattagctat atcaacatgt tcaagagaca tggatata gctaatt 47

<210> 30
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase11

<400> 30
accacaaaacg gcgaaacgat tcaagagatc gttccgcccgt ttgtgg 47

<210> 31
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 11

<400> 31
gagggtcttg gaggtcttct tcaagagaga agacctccaa gaccctc

47

<210> 32
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 11

<400> 32
gtccatgccc agccgtacat tcaagagatg tacggctggg catggac

47

<210> 33
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 11

<400> 33
gctggacacc ctcgtggagt tcaagagact ccacgagggt gtccagc

47

<210> 34
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 10

<400> 34
gaatatcaga gaattgagtt tcaagagaac tcaattctct gatattc

47

<210> 35
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 10

<400> 35
tggacttcat gaggaaatgt tcaagagaca tttcctcatg aagtcca

47

<210> 36
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 10

<400> 36
tattgaatat cctgtggact tcaagagagt ccacaggata ttcaata 47

<210> 37
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 10

<400> 37
ttgtactgag agaaaactgct tcaagagagc agtttctctc agtacaa 47

<210> 38
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the HAUSP gene

<400> 38
gatcaatgat aggttgaat tcaagagatt caaacctatc attgatc 47

<210> 39
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the HAUSP gene

<400> 39
ggagttttag aagtttaaat tcaagagatt taaaacttctc aaactcc 47

<210> 40
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding

an shRNA directed against the HAUSP gene

<400> 40
gaactcctcg cttgctgagt tcaagagact cagcaagcga ggagttc

47

<210> 41
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the HAUSP gene

<400> 41
ccgaatttaa cagagagaat tcaagagatt ctctctgtta aattcgg

47

<210> 42
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 8

<400> 42
gacagcagaa gaatgcagat tcaagagatc tgcatcttc tgctgtc

47

<210> 43
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 8

<400> 43
ataaagctca acgagaacct tcaagagagg ttctcggttga gctttat

47

<210> 44
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 8

<400> 44
ggtgaagtgg cagaagaatt tcaagagaat tcttctgccat cttcacc

47

<210> 45
<211> 47

<212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 8

<400> 45
 gtattgcagt aatcatcaact tcaagagagt gatgattact gcaatac

47

<210> 46
 <211> 47
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the FLJ10785 gene

<400> 46
 gatatgggtt tccatgtcat tcaagagatg acatggaaacc ccatatc

47

<210> 47
 <211> 47
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the FLJ10785 gene

<400> 47
 ggagacatgg ttcttagtgt tcaagagaca ctaagaacca tgtctcc

47

<210> 48
 <211> 47
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the FLJ10785 gene

<400> 48
 agcaccaagt tcgtctcagt tcaagagact gagacgaact tggtgct

47

<210> 49
 <211> 47
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the FLJ10785 gene

<400> 49
 gatgcaacac tgaaagaact tcaagagagt tctttcagtg ttgcac

47

<210> 50
 <211> 47
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the KIAA0710 gene

<400> 50
 gtcaatggca gtgatgatat tcaagagata tcatactgc cattgac

47

<210> 51
 <211> 47
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the KIAA0710 gene

<400> 51
 cctgctagct gcctgtggct tcaagagagc cacaggcagc tagcagg

47

<210> 52
 <211> 47
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the KIAA0710 gene

<400> 52
 ccacctttgc cagaaggagt tcaagagact cttctggca aaggtgg

47

<210> 53
 <211> 47
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the KIAA0710 gene

<400> 53
 ccctattttag gcaagtgtct tcaagagaga cacttgcctc aatagg

47

<210> 54
 <211> 47
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the genes
 FLJ12552/FLJ14256

<400> 54
gaaggaaaac ttgctgacgt tcaagagacg tcagcaagtt ttccttc

47

<210> 55
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the FLJ12552/FLJ14256
genes

<400> 55
ctcacctggg tccatgagat tcaagagatc tcattggaccc aggtgag

47

<210> 56
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the FLJ12552/FLJ14256
genes

<400> 56
gctgtcttac cgtgtggct tcaagagaga ccacacggta agacagc

47

<210> 57
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the FLJ12552/FLJ14256
genes

<400> 57
cctggaccgc atgtatgact tcaagagagt catacatgcg gtccagg

47

<210> 58
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the KIAA1203 gene

<400> 58
gtcaatggca gtgatgatat tcaagagata tcattcaactgc cattgac

47

<210> 59
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the KIAA1203 gene

<400> 59
cctgctagct gcctgtggct tcaagagagc cacaggcagc tagcagg

47

<210> 60
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the KIAA1203 gene

<400> 60
ccacctttgc cagaaggagt tcaagagact ccttctggca aaggtgg

47

<210> 61
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the KIAA1203 gene

<400> 61
ccctattttag gcaagtgtct tcaagagaga cacttgcctc aataggg

47

<210> 62
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the FLJ23277 gene

<400> 62
ggaaatccga attgcttggc tcaagagacc aagcaattcg gatttcc

47

<210> 63
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the FLJ23277 gene

<400> 63
cacatttctt caagtgtggc tcaagagacc acacttgaag aaatgtg

47

<210> 64
<211> 47

<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the FLJ23277 gene

<400> 64
cagcaggatg ctcaagaatt tcaagagaat tcttgagcat cctgctg

47

<210> 65
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the FLJ23277 gene

<400> 65
gctgaataacc tacattggct tcaagagagc caatgttaggt attcagc

47

<210> 66
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the FLJ14914 (similar to
UBP4) gene

<400> 66
gggcttgc ctggccttgt tcaagagaca aggccaggca caagccc

47

<210> 67
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the FLJ14914 (similar to
UBP4) gene

<400> 67
gccttgcct gccaagaagt tcaagagact tcttggcagg acaaggc

47

<210> 68
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the FLJ14914 (similar to
UBP4) gene

<400> 68

gattgaagcc aagggaacgt tcaagagacg ttcccttggc ttcaatc 47
 <210> 69
 <211> 47
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the FLJ14914 (similar to
 UBP4) gene
 <400> 69
 tggcgccatc tccccatctt tcaagagaag atggggagca ggcgcca 47
 <210> 70
 <211> 47
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase isozyme L5
 <400> 70
 gaaccagcag gctctgtgg tcaagagacc acagagcctg ctggttc 47
 <210> 71
 <211> 47
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase isozyme L5
 <400> 71
 ggaaggataa ttatctgcct tcaagagagg cagataatta tgcttcc 47
 <210> 72
 <211> 47
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase isozyme L5
 <400> 72
 agaagaagat gctttcact tcaagagagt gaaaagcatc ttcttct 47
 <210> 73
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase isozyme L5

<400> 73
cttgcagagg aggaaccat tcaagagatg ggttcctcct ctgcaag

47

<210> 74
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase isozyme L3

<400> 74
gcaaacaatc agcaatgcct tcaagagagg cattgctgat tgtttgc

47

<210> 75
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase isozyme L3

<400> 75
ttggactgat tcatgctatt tcaagagaat agcatgaatc agtccaa

47

<210> 76
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase isozyme L3

<400> 76
ctggcaattc gttgatgtat tcaagagata catcaacgaa ttgccag

47

<210> 77
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase isozyme L3

<400> 77

ttagatggc ggaagccatt tcaagagaat ggcttccgcc catctaa

47

<210> 78
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase isozyme L1

<400> 78
 gagaggatctc tgggctcggt tcaagagacc gagcccagag actcctc

47

<210> 79
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase isozyme L1

<400> 79
 gagctgaagg gacaagaagt tcaagagact tcttgccttc tcaagctc

47

<210> 80
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase isozyme L1

<400> 80
 tgtcggttag atgacaagg tcaagagacc ttgtcatcta cccgaca

47

<210> 81
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase isozyme L1

<400> 81
 cacagctgtt cttctgttct tcaagagaga acagaagaac agctgtg

47

<210> 82
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the KIAA1891/FLJ25263
 genes

<400> 82
 gtggaaggcct ttacagatct tcaagagaga tctgtaaagg cttccac

47

<210> 83
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the KIAA1891/FLJ25236
 genes

<400> 83
 caacagctgc cttcatctgt tcaagagaca gatgaaggca gctgttg

47

<210> 84
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the KIAA1891/FLJ25263
 genes

<400> 84
 ccataggcag tcctcctaatt tcaagagatt aggaggactg cctatgg

47

<210> 85
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the KIAA1891/FLJ25263
 genes

<400> 85
 tgtatcactg ccactggttt tcaagagaaa ccagtggcag tgataca

47

<210> 86
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the FLJ14528 (similar to
 UBP8) gene

<400> 86

catgttgggc agctgcagct tcaagagagc tgcagctgcc caacatg

47

<210> 87
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the FLJ14528 (similar to
 UBP8) gene

<400> 87
 cacaactgga gacctgaagt tcaagagact tcaggtctcc agttgtg

47

<210> 88
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the FLJ14528 (similar to
 UBP8) gene

<400> 88
 gtatgcctcc aagaaagagt tcaagagact ctttcttggaa ggcatac

47

<210> 89
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the FLJ14528 (similar to
 UBP8) gene

<400> 89
 cttcacagta catttctt tcaagagaag agaaatgtac tgtgaag

47

<210> 90
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the U4/U6
 TRI snRNP 65 kDa protein

<400> 90
 gtactttcaa ggccgggtt tcaagagaac cccggccttg aaagtac

47

<210> 91
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the U4/U6
TRI snRNP 65 kDa protein

<400> 91
cttggacaag caagccaaat tcaagagatt tggcttgctt gtccaaag

47

<210> 92
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the U4/U6
TRI snRNP 65 kDa protein

<400> 92
gactattgtg actgatgttt tcaagagaaa catcagtcac aatagtc

47

<210> 93
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the U4/U6
TRI snRNP 65kDa protein

<400> 93
ggagaacttt ctgaagcgct tcaagagagc gtttcagaaa gttctcc

47

<210> 94
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA for the XM_089437 gene

<400> 94
gacgagagaa accttcacct tcaagagagg tgaaggtttc tctcgac

47

<210> 95
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the XM_089437 gene

<400> 95
acattattctt acatttttt tcaagagaaa agaatgtaga ataatgt

47

<210> 96
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the XM_089437 gene

<400> 96
agattcgc aa atggatgtat tcaagagata catccatttg cgaatct 47

<210> 97
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the XM_089437 gene

<400> 97
cattccacc atgagtctgt tcaagagaca gactcatggt ggaaatg 47

<210> 98
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the KIAA1453 gene

<400> 98
gatcgcccg a cacttccgct tcaagagagc ggaagtgtcg ggcgatc 47

<210> 99
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the KIAA1453 gene

<400> 99
ccagcaggcc tacgtgctgt tcaagagaca gcacgttaggc ctgctgg 47

<210> 100
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the KIAA1453 gene

<400> 100

gccagctcct ccacagca tcaagagagt gctgtggagg agctggc

47

<210> 101
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the KIAA1453 gene

<400> 101
cgccgccaag tggagcagat tcaagagatc tgctccactt ggccggcg

47

<210> 102
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the FLJ12697 gene

<400> 102
gaagatgccc atgaattcct tcaagagagg aattcatggg catcttc

47

<210> 103
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the FLJ12697 gene

<400> 103
caaacaggct gcgccaggct tcaagagagc ctggcgcagc ctgtttg

47

<210> 104
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the FLJ12697 gene

<400> 104
acggcctagc gcctgatgg tcaagagacc atcaggcgct aggccgt

47

<210> 105
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the FLJ12697 gene

<400> 105
ctgtaacctc tctgatcggt tcaagagacc gatcagagag gttacag

47

<210> 106
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin specific protease (USP18)

<400> 106
tctgtcagtc catcctggct tcaagagagc caggatggac tgacaga

47

<210> 107
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin specific protease (USP18)

<400> 107
tgaagcgaga gtcttgtat tcaagagatc acaagactct cgcttca

47

<210> 108
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin specific protease (USP18)

<400> 108
gatggagtgc taatggaaat tcaagagatt tccatttagca ctccatc

47

<210> 109
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin specific protease (USP18)

<400> 109
ccttcagaga ttgacacgct tcaagagagc gtgtcaatct ctgaagg

47

<210> 110
<211> 47

<212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 20

<400> 110
 cctgaccacg ttccgactgt tcaagagaca gtcggAACgt ggtcagg

47

<210> 111
 <211> 47
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 20

<400> 111
 gagttccttc gctgcctgat tcaagagatc aggcagcgaa ggaactc

47

<210> 112
 <211> 47
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 20

<400> 112
 gactgccttg ctgccttctt tcaagagaag aaggcagcaa ggcagtc

47

<210> 113
 <211> 47
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 20

<400> 113
 cggcgagggc tacgtactct tcaagagaga gtacgtagcc ctcggcg

47

<210> 114
 <211> 47
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 24

<400> 114
ggcgagaaga aaggactgtt tcaagagaac agtccttct tctcgcc

47

<210> 115
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl terminal hydrolase 24

<400> 115
ggacgagaat tgataaaagat tcaagagatc tttatcaatt ctcgtcc

47

<210> 116
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 24

<400> 116
gcacgagaat ttgggaatct tcaagagaga ttcccaaatt ctcgtgc

47

<210> 117
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 24

<400> 117
ctacttcatg aaatattggc tcaagagacc aatatttcat gaagtag

47

<210> 118
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the KIAA1594 gene

<400> 118
gataacagct tcttgtctat tcaagagata gacaagaagc tgttatc

47

<210> 119
<211> 47
<212> DNA

<213> Artificial Sequence
 <220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the KIAA1594 gene

<400> 119
 gagaatagga catcagggtt tcaagagagc cctgatgtcc tattctc

47

<210> 120
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the KIAA1594 gene

<400> 120
 ctttggaaagac tgaacctgtt tcaagagaac aggttcagtc ttccaaag

47

<210> 121
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the KIAA1594 gene

<400> 121
 caactccctt gtggatgcat tcaagagatg catccacaaa ggagttt

47

<210> 122
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the KIAA1350 gene

<400> 122
 gatgttgtct ccaaattgcat tcaagagatg catttggaga caacatc

47

<210> 123
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the KIAA1350 gene

<400> 123
 cgtggggact gtacccctt tcaagagagg gaggtacagt ccccacg

47

<210> 124

```

<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
      an shRNA directed against the KIAA1350 gene

<400> 124
      gtacagcttc agaaccaagt tcaagagact tggttctgaa gctgtac 47

<210> 125
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
      an shRNA directed against the gene for the
      ubiquitin carboxyl-terminal hydrolase 25

<400> 125
      gatgatcttc agagagcaat tcaagagatt gctctctgaa gatcatc 47

<210> 126
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
      an shRNA directed against the gene for the
      ubiquitin carboxyl-terminal hydrolase 25

<400> 126
      ggaacatcg g aatttgcctt tcaagagaag gcaaattccg atgttcc 47

<210> 127
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
      an shRNA directed against the gene for the
      ubiquitin carboxyl-terminal hydrolase 25

<400> 127
      gagctagtga gggactcttt tcaagagaaa gagtccctca ctagctc 47

<210> 128
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
      an shRNA directed against the gene for the
      ubiquitin carboxyl-terminal hydrolase 25

```

<400> 128
 gcagggttct ttaaggcaat tcaagagatt gccttaaga accctgc 47

<210> 129
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 16

<400> 129
 tcgatgattc ctctgaaaact tcaagagagt ttcagaggaa tcatcga 47

<210> 130
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 16

<400> 130
 gataatgaa atattgaaact tcaagagagt tcaatatttc cattatc 47

<210> 131
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 16

<400> 131
 gttcttcatt taaatgatat tcaagagata tcatttaat gaagaac 47

<210> 132
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 16

<400> 132
 gttAACAAAC acataaaggTT tcaAGAGAAC tttATGTGTT TGTAAAC 47

<210> 133
 <211> 47

<212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the USP9X gene

<400> 133
 gtttagagaag attcttcgtt tcaagagaac gaagaatctt ctctaac

47

<210> 134
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the USP9X gene

<400> 134
 gttgatttga caatcaaact tcaagagagt ttaattgtcc aatcaac

47

<210> 135
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the USP9X gene

<400> 135
 gtttgataacc gtaaagcgct tcaagagagc gctttacggt atcaacc

47

<210> 136
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the USP9X gene

<400> 136
 gcaatgaaac gtccaatggc tcaagagacc attggacggt tcattgc

47

<210> 137
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the USP9Y gene

<400> 137
 agcttagagaa aattcttcgt tcaagagacg aagaattttc tctagct

47

<210> 138
 <211> 47
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the USP9Y gene

<400> 138
 gatcctataat gatggatgtat tcaagagatc atccatcata taggatc

47

<210> 139
 <211> 47
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the USP9Y gene

<400> 139
 gttcttcttg tcagtgaaat tcaagagatt tcactgacaa gaagaac

47

<210> 140
 <211> 47
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the USP9Y gene

<400> 140
 cttgagcttg agtgaccact tcaagagagt ggtcactcaa gctcaag

47

<210> 141
 <211> 47
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 5

<400> 141
 gaccggccag cgagtctact tcaagagagt agactcgctg gccggtc

47

<210> 142
 <211> 47
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 5

<400> 142
ggacctgggc tacatctact tcaagagagt agatgttagcc caggtcc

47

<210> 143
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 5

<400> 143
ctctgtggtc caggtgctct tcaagagaga gcacctggac cacagag

47

<210> 144
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 5

<400> 144
gaccacacga tttgcctcat tcaagagatg aggcaaatcg tgtggtc

47

<210> 145
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 26

<400> 145
tggcttggtt attgaaggat tcaagagatc cttcaataaa caagcca

47

<210> 146
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 26

<400> 146
gtgaatttgg ggaagataat tcaagagat~~t~~ atcttccccca aattcac

47

<210> 147
<211> 47
<212> DNA

<213> Artificial Sequence
 <220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 26

<400> 147
 cgctatacgct tgaatgagtt tcaagagaac tcattcaagc tatagcg

47

<210> 148
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 26

<400> 148
 gatatacctgg ctccacacat tcaagagatg tgtggagcca ggatatc

47

<210> 149
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the KIAA1097 gene

<400> 149
 gagccagtcg gatgttagatt tcaagagaat ctacatccga ctggctc

47

<210> 150
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the KIAA1097 gene

<400> 150
 gtaaattctg aaggcgaatt tcaagagaat tcgccttcag aatttac

47

<210> 151
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the KIAA1097 gene

<400> 151
 gccctcctaa atcaggcaat tcaagagatt gcctgatttgcgggc

47

<210> 152
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the KIAA1097 gene

<400> 152
 gttgagaaat ggagtgaagt tcaagagact tcactccatt tctcaac 47

<210> 153
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin specific protease (USP22) gene

<400> 153
 gcttggaaaaa tgcaaggcgt tcaagagacg ccttgcattt tccaagc 47

<210> 154
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin specific protease (USP22) gene

<400> 154
 ctgcatacata gaccagatct tcaagagaga tctggtctat gatgcag 47

<210> 155
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin specific protease (USP22) gene

<400> 155
 gatcaccacg tatgtgtcct tcaagagagg acacatacgt ggtgatc 47

<210> 156
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding

an shRNA directed against the gene for the
ubiquitin specific protease 22 (USP22) gene

<400> 156
tgacaacaag tattccctgt tcaagagaca ggaaatactt gttgtca

47

<210> 157
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin specific processing protease 29

<400> 157
gaaatataag acagattcct tcaagagagg aatctgtctt atatttc

47

<210> 158
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin specific processing protease 29

<400> 158
cccatcaagt ttagaggatt tcaagagaat cctctaaact tcatggg

47

<210> 159
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin specific processing protease 29

<400> 159
ggtgtcccat gggatatata tcaagagata tattccatg ggacacc

47

<210> 160
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin specific processing protease 29

<400> 160
gaatgccgac ctacaaagat tcaagagatc tttgttaggtc ggcattc

47

<210> 161
 <211> 47
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the CYLD gene

<400> 161
 cagttataatt ctgtgatgtt tcaagagaac atcacagaat ataaactg

47

<210> 162
 <211> 47
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the CYLD gene

<400> 162
 gaggtgttgg ggacaaaggt tcaagagacc tttgtcccca acacctc

47

<210> 163
 <211> 47
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the CYLD gene

<400> 163
 gtgggctcat tggctgaagt tcaagagact tcagccaatg agcccac

47

<210> 164
 <211> 47
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the CYLD gene

<400> 164
 gagctactga ggacagaaat tcaagagatt tctgtcctca gtagctc

47

<210> 165
 <211> 47
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 2

<400> 165

tcagcaggat gctcaggagt tcaagagact cctgagcatc ctgctga

47

<210> 166
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 2

<400> 166
 gaagttctcc atccagaggt tcaagagacc tctggatgga gaacttc

47

<210> 167
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 2

<400> 167
 gccggtcccc accagcagct tcaagagagc tgctggtggg gaccggc

47

<210> 168
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 2

<400> 168
 cactcgggag ttgagagatt tcaagagaat ctctcaactc ccgagtg

47

<210> 169
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin specific protease 3 (USP3)

<400> 169
 gcccctgggt ctgtttgact tcaagagagt ccaaacagacc caaggc

47

<210> 170
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin specific protease 3 (USP3)

<400> 170
 ctcaacacta aacagcaagt tcaagagact tgctgttag tgttgag

47

<210> 171
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin specific protease 3 (USP3)

<400> 171
 gatttcattg gacagcatat tcaagagata tgctgtccaa tgaaatc

47

<210> 172
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin specific protease 3 (USP3)

<400> 172
 catggggcac caactaattt tcaagagaaa ttagttggtg ccccatg

47

<210> 173
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 23

<400> 173
 ggtgtctctg cgggattgtt tcaagagaac aatcccgac agacacc

47

<210> 174
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 23

<400> 174

agttcagtag gtgttagactt tcaagagaag tctacaccta ctgaact

47

<210> 175
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 23

<400> 175
 gagttcctga agctcctcat tcaagagatg aggagctca ggaactc

47

<210> 176
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 23

<400> 176
 ggatttgctg gggcaaggt tcaagagacc ttgccccag caaatcc

47

<210> 177
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the UBP-32.7 gene

<400> 177
 ctcagaaagc caacattcat tcaagagatg aatgttggct ttctgag

47

<210> 178
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the UBP-32.7 gene

<400> 178
 cgcatgttaa taagaagggtt tcaagagaac cttcttattt caatgcg

47

<210> 179
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the UBP-32.7 gene

<400> 179
gggaggaaaa tgcagaaaatt tcaagagaat ttctgcattt tcctccc

47

<210> 180
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the UBP-32.7 gene

<400> 180
ttacaaattt aggaaaatact tcaagagagt atttcctaaa tttgtaa

47

<210> 181
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the Homo
sapiens ubiquitin specific protease 13
(isopeptidase T-3)

<400> 181
gttatgaatt gatatgcagt tcaagagact gcataatcataac

47

<210> 182
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the Homo
sapiens ubiquitin specific protease 13
(isopeptidase T-3)

<400> 182
gtgataaacac aactaatggc tcaagagacc attagttgtg ttatcac

47

<210> 183
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the Homo
sapiens ubiquitin specific protease 13
(isopeptidase T-3)

<400> 183
gttagaggaga gttctgaaat tcaagagatt tcagaactct cctctac

47

```

<210> 184
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
      an shRNA directed against the gene for the Homo
      sapiens ubiquitin specific protease 13
      (isopeptidase T-3)

<400> 184
      gcctctaatac ctgataaggt tcaagagacc ttatcaggat tagaggc          47

<210> 185
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
      an shRNA directed against the gene for the
      ubiquitin carboxyl-terminal hydrolase 28

<400> 185
      gatgatcttc aggctgccat tcaagagatg gcagcctgaa gatcatc          47

<210> 186
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
      an shRNA directed against the gene for the
      ubiquitin carboxyl-terminal hydrolase 28

<400> 186
      gtatggacaa gagcggttgt tcaagagacc aacgctcttg tccatac          47

<210> 187
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
      an shRNA directed against the gene for the
      ubiquitin carboxyl-terminal hydrolase 28

<400> 187
      cgaacccttc tggAACAGTT tcaAGAGAAC tggTCCAGAA gggTTCG          47

<210> 188
<211> 47
<212> DNA
<213> Artificial Sequence

```

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 28

<400> 188
 gtggcatgaa gattatagtt tcaagagaac tataatcttc atgccac

47

<210> 189
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the ubiquitin
 carboxyl-terminal hydrolase 14

<400> 189
 ggtgaacaag gacagtatct tcaagagaga tactgtcctt gttcacc

47

<210> 190
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 14

<400> 190
 gcaatagagg atgattctgt tcaagagaca gaatcatcct ctattgc

47

<210> 191
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 14

<400> 191
 tctgtgaatg ccaaagttct tcaagagaga actttggcat tcacaga

47

<210> 192
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 14

<400> 192

cacaccaggg aaggctctagt tcaagagact agaccttccc tggtgtg

47

<210> 193
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the DUB1 gene

<400> 193
gcaggaagat gcccataat tcaagagatt catgggcattc ttccctgc

47

<210> 194
<211> 47
<212> DNA
<213> Artificial Sequence

<220> ..
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the DUB1 gene

<400> 194
gaatgtgcaa tatcctgagt tcaagagact caggatattg cacattc

47

<210> 195
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the DUB1 gene

<400> 195
tggatgtgc caaggtcaact tcaagagagt gaccttggca tcatacca

47

<210> 196
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the DUB1 gene

<400> 196
gctccgtgct aaacctctct tcaagagaga gaggttagc acggagc

47

<210> 197
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the mouse

USP27 homolog

<400> 197
 gcctccacccat caacagaggt tcaagagacc tctgttgagg tggaggc 47

<210> 198
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the mouse
 USP27 homolog

<400> 198
 ctgcata gacaaatct tcaagagaga tttggtctat gatgcag 47

<210> 199
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the mouse
 USP27 homolog

<400> 199
 gatcaactaca tacatttcct tcaagagagg aaatgtatgt agtgatc 47

<210> 200
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the mouse
 USP27 homolog

<400> 200
 gtaaagagag cagaatgaat tcaagagatt cattctgctc tctttac 47

<210> 201
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 4

<400> 201
 cgcggggcgc agtggtatct tcaagagaga taccactgcg ccccgcg 47

<210> 202

<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 4

<400> 202
cagaaggcag tggggaagat tcaagagatc ttccccactg ccttctg

47

<210> 203
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 4

<400> 203
gcctgggaga atcacagggtt tcaagagaac ctgtgattct cccaggg

47

<210> 204
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 4

<400> 204
accagacaag gaaataccct tcaagagagg gtatttcctt gtctgg

47

<210> 205
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the TRE-2 gene

<400> 205
cacatccacc acatcgacct tcaagagagg tcgatgtggt ggatgtg

47

<210> 206
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the TRE-2 gene

<400> 206
gtcacacaaccc aagaccatgt tcaagagaca tggtcttggg ttgtgac 47

<210> 207
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the TRE-2 gene

<400> 207
ctcaacacagga caaatcccat tcaagagatg ggatttgc tggtag 47

<210> 208
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the TRE-2 gene

<400> 208
tagatcaatt attgtggatt tcaagagaat ccacaataat tgatcta 47

<210> 209
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 15 (UNPH-2)

<400> 209
ggaacacacctt attgatgaat tcaagagatt catcaataag gtgttcc 47

<210> 210
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 15 (UNPH-2)

<400> 210
ctttaacaga aattgtctct tcaagagaga gacaatttct gttaaag 47

<210> 211
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 15 (UNPH-2)

<400> 211
 cctatgcagt acaaagtgg tcaagagacc actttgtact gcatagg

47

<210> 212
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 15 (UNPH-2)

<400> 212
 gatctttct tgctttggat tcaagagatc caaagcaaga aaagatc

47

<210> 213
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the KIAA1372 gene

<400> 213
 cagcatcctt caggccttat tcaagagata aggcctgaag gatgctg

47

<210> 214
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the KIAA1372 gene

<400> 214
 gatagtgact cggatctgct tcaagagagc agatccgagt cactatc

47

<210> 215
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the KIAA1372 gene

<400> 215
 gacatcacag cccgggagtt tcaagagaac tcccgggctg tgatgtc

47

<210> 216

<211> 47
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the KIAA1372 gene

<400> 216
 ggacacagcc tatgtgctgt tcaagagaca gcacataggc tgtgtcc

47

<210> 217
 <211> 47
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the BRCA1
 associated protein-1

<400> 217
 gtggaggaga tctacgacct tcaagagagg tcgtagatct cctccac

47

<210> 218
 <211> 47
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the BRCA1
 associated protein-1

<400> 218
 ctcttgca actcatgcct tcaagagagg catgagttgc acaagag

47

<210> 219
 <211> 47
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the BRCA1
 associated protein-1

<400> 219
 acaggcccccc tgcaagcctct tcaagagaga ggctgcaggg gccctgt

47

<210> 220
 <211> 47
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the BRCA1
 associated protein-1

<400> 220

gaagacctgg cggcaggtgt tcaagagaca cctgccgcc a ggtcttc

47